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THE ADMINISTRATION OF QUANTITATIVE AND QUALITATIVE CREDIT FOR HIGH-SCHOOL WORK

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The bulletin of the Kansas City, Kansas, High School for the year 1915-16 contained the following announcement relative to quantitative and qualitative credit:

Beginning this year, grades of I, II, and III will count toward graduation as follows:

- A grade of I will count as 1.2 units
- A grade of II will count as 1.1 units
- A grade of III will count as 1.0 unit

This differentiation in credit values is made for the reason that pupils who are able, under the same class conditions and in the same length of time, to acquire either a more thorough command over a definite amount of subject-matter, or over more subject-matter than their classmates, should be encouraged to do so and credited accordingly. By this system of credit a pupil who takes 5 subjects per year for three years and makes grades of I in all subjects can complete the 18 units of credit required for graduation from high school in the three years and devote the fourth year to junior college work.

This weighted credit was determined on the following basis: Eighteen units of credit are required for graduation. At least 12 of the units must be earned in academic subject-matter. As many as 6 units may be taken in non-academic subject-matter.

Each pupil doing normal work takes five subjects, four academic and one non-academic. All the subjects are equal in credit value. A pupil who, under this system of weighted credit, makes five grades of I, gets 6 units of credit. At this level he can secure the 18 units of credit necessary for graduation in three years. On this basis a grade of I was assigned a value of 1.2 units of credit; the next highest grade, a II, was given 1.1 units of credit; and the lowest passing mark, a III, was given 1.0 unit of credit.

At our first few faculty meetings of the year this system was discussed. All teachers agreed that it called for a more careful plan of grading than the old system; that, since it was the purpose of this system to encourage pupils to put forth their best efforts in the interests of higher scholarship, they should be made conscious of the way in which teachers differentiate between high and low scholarship; that one of the methods of making a grading system objective is to let pupils know in advance what work will be expected of them for the various grade levels.

It is a custom in this school to issue report cards for pupils every six weeks. At the end of the first five weeks of school I suggested to the members of the faculty that they write down the essential elements which they were going to consider in estimating their marks for the first six weeks' work and hand them to me at the beginning of the seventh week. There were reports from ten teachers of English, eight teachers of mathematics, seven teachers of foreign languages, five teachers of history, three teachers of commercial work, six teachers of the manual-constructive work, four teachers of art, and two teachers of physical-training work. I shall have time to call attention to only a few of the outstanding facts.

The most striking single fact was that teachers teaching within the same department were putting emphases upon different things as bases for awarding grades.

Some science teachers insisted that the "power of observation" must be shown by a pupil before he could get any credit. Others never mentioned it. Some insisted that a pupil must recite so many times each six weeks to get a certain grade. Others did not even mention this point. All agreed that all laboratory work must

be completed before any credit would be given, and that frequent short tests were necessary as a basic part of their grading system.

The Latin reports showed practically no uniformity on the basic elements of grading. One teacher considered oral work, written work, and tests of equal importance in determining any grade regardless of what each one tests or how each is measured. She said nothing about the quantity of work a pupil should do for a given grade. Another teacher made quantity a definite part of his grading for the advanced work in Latin, and suggested that it should be taken into account in grading beginning Latin. Another teacher mentioned the following system of assigning credit: over 90 per cent equal to I; 80-90 per cent equal to II; 60-80 per cent equal to III; below 60 per cent equal to IV (failure).

One teacher of history made his main distinction in grades on "extra essays and oral reports." Another teacher, grading pupils in the same subject-matter, determined the standing of his pupils by judging them on attention, leading to interest; adaptability to the situation; degrees of initiative; habits of study, and various written exercises. Another teacher determined the difference in grades on the basis of the ability of the pupil to read and to tell in good English what he had read. No other elements were mentioned. Still another teacher took an entirely different basis for estimating grades; he made both the quantity and the quality of the work essentials in determining all his marks. He noted the attitudes of his pupils and tested them for memory, originality, and ability to study and grasp new facts. A study of this report showed that the methods of this teacher were totally different from the methods of the teacher previously mentioned, yet the two were teaching identical subject-matter.

The reports of four teachers of English showed interesting comparisons on salient points in marking English. The first, third, and fourth teachers said absolutely nothing about requiring more work from a pupil who makes the highest grade. The difference in marks was based wholly on quality. The second teacher thought the stronger pupils should do more work with a higher quality. Teachers Nos. 1 and 3 spoke of grading pupils high who do "these things" in "as good a manner" as, or "better than," a high-school

pupil is expected to do them. Teacher No. 1 said that the grade of II is the grade "a normal pupil receives when he does good, consistent work which shows gradual improvement." Teachers Nos. 1 and 4 thought a "keen appreciation of literature" was necessary for a high grade. The other two did not mention this point. Teacher No. 2 thought that composition, both oral and written, which showed that pupils had habits of correct use of English should be graded high. Also pupils who have read literature until "phrases and extracts from reading appear in written and oral work" should get high grades. All of the teachers mentioned neatness, accuracy, attendance, and promptness in doing assigned work as essentials for different grades.

Another striking fact was that teachers of non-academic subjects were grading on some of the same essential elements as were teachers of academic subjects.

Throughout these reports teachers were found insisting on "neatness," "accuracy," "observation and originality," "quantity of work"; "I study my pupil hard and give the grades as an incentive and not as a penalty"; "work must be in on time"; "quality is permanent, quantity is cheap in the mechanical world"; "strict attention to class work"; "must show an interest in work"; "application"; "speed"; "good grades on examinations."

Enough of these reports have been mentioned to show (1) that the teachers had but vague notions of the elements which they took into consideration in determining grades; (2) that they had made no clear line of demarcation between the pupil just passing and the pupil doing the most excellent work; (3) that certain salient points are considered in grading all kinds of subject-matter; (4) the need of the co-operation of the faculty in determining in as precise and objective a manner as possible what are the distinguishing differences between work that should be given a high mark and work that should be given a low mark.

In an attempt to meet the needs just pointed out, I used the following plan. I selected from the fifty-one reports which the faculty turned over to me what I thought were the main elements mentioned by teachers of academic and non-academic subjects and had the list mimeographed. I gave each member of the faculty

a copy, and asked him to study these elements carefully and to mark opposite each element the ranking he would give it in making up a grade, i.e., mark whether it should be required of a pupil making a grade of I, II, III, or IV. In some cases an element might be required of pupils of more than one rank; for instance, the point "neatness" might be required of all pupils getting a passing mark. From these rankings we obtained the following essential elements for grades of I, II, and III:

THE ESSENTIAL ELEMENTS FOR GRADE III

I.0 UNIT OF CREDIT FOR GRADE III

1. *All the work asked of all the class*, such as laboratory notebooks, themes, oral and written, tests, exercises, map-books, book reviews, notebooks, translations, etc., must be handed to the instructor before any credit will be given.

2. This work must be reasonably neat and accurate. *Poorly spelled and illegible work* cannot be accepted for credit.

3. *Good attention and steady employment* during the class hours are required of all pupils who are given credit for a course.

The quality of the work for this grade should be 75 per cent perfect.

THE ESSENTIAL ELEMENTS FOR GRADE II

I.1 UNITS OF CREDIT FOR GRADE II

1, 2, 3 as previously given.

4. The average of all test grades must be II.

5. Pupils securing this grade must show some initiative in attacking new work, i.e., they should, by consulting such aids as a dictionary, indexes, collateral texts, etc., by reviewing what they have already learned, and by paying careful attention to the assignment, be able to get the advanced work without *much help* from the teacher.

6. In every particular the quality of the work for grade II should be superior to the quality of the work for grade III.

7. Recitations should be well made without the aid of the teacher.

8. Daily preparation of assignments.

The quality of the work for this grade should be 85 per cent perfect.

THE ESSENTIAL ELEMENTS FOR GRADE I

1.2 UNITS OF CREDIT FOR GRADE I

1, 2, 3, 5, 7 as previously given.

9. The average of test grades must be I.

10. Persistent daily preparation of assignments with but little urging and with but little help on the part of the teacher.

11. *Accuracy, neatness, legibility, correct spelling* must be the distinguishing characteristics of the work graded I.

12. The *quantity of work* done by a pupil receiving grade I should exceed that done by a pupil receiving grade II or III.

The quality of the work for this grade should be 95 per cent perfect.

We decided to make the pupils of the school acquainted with these essential elements of the various grades. Accordingly we had the elements for each grade printed, in type large enough to be read easily, on separate cards 19×30 inches in size. These cards are hung in every classroom in the building. Teachers and pupils discuss them frequently throughout the year and especially at the beginning of each six weeks' grade period.

It is evident that this differentiation in the essential elements which go to make up a certain grade, or grades, is primarily a qualitative and not a quantitative one. It will be noted, however, that element No. 12 states that the quantity of work done by a pupil receiving a grade of I should exceed that done by a pupil receiving a grade of II or III. The determining of the quantity of work to be done for a specific grade is a departmental problem. The teachers meet by departments at the beginning of each six weeks' period and agree upon the quantity of work which they will assign for the next six weeks for the various grades. These are written on a strip of cardboard furnished the teachers by the office, and appended to the card of printed essential elements. A copy of these quantitative requirements is filed in the office. I might state in passing that last year the range in the quantity of work expected of a pupil making a grade of III and a pupil making a grade of I was greater than this year. The teachers found that pupils were working to cover the quantity of work assigned and neglecting to check their quality. Also pupils who covered the quantitative

assignments expected the grades promised for covering these quantities regardless of the quality of the work. This year the teachers are insisting that the pupils who get high grades must earn them by showing, primarily, superior qualitative work.

The following are examples of the requirements for the six weeks' periods handed to me:

REQUIREMENTS FOR FIRST SIX WEEKS IN 1916-17

BIOLOGY

Grade III on general class requirements

Topics:

1. Biology and environment.
2. Relations existing between green plants and animals.
3. Study of plants, a flower, parts, pollination, relation of insects, etc.
4. Living plants and animals compared.
5. Seed growth.
6. Need of foods. Plants and animals. Field and laboratory work. Text as guide.

- | | | |
|----------|---|---|
| Three | { | 1. Study and recognition of trees and fruits by leaves, bark, etc. |
| class | | 2. Collection and mounting of 40 insects. |
| types | | 3. Collection and pressing of 40 fall flowering plants and weeds. |
| required | | 4. Assigned exercises on foregoing topics as laboratory work. |
| | | 5. Report on one reference reading from assigned list. |
| | | 6. Collection of clippings from current newspapers and periodicals. |

Grade II

As above. With 5 more plants and insects, additional reference work, and laboratory work.

Grade I

As above. With 10 more plants, 10 more insects, additional reference work, and laboratory work.

REQUIREMENTS IN ENGLISH, OCTOBER 23 TO DECEMBER 1, 1916

ENGLISH 1-2

Grade III

1. Grade III in recitations.
2. Grade III in all class exercises.
3. Written themes, 3.
4. Oral themes, 3.
5. Classic, "Short Stories," 6 stories.
6. Spelling rules 1 and 2, and "a" and "b" words in *Manual*.¹

¹ Our English teachers last year published a manual containing certain principles of grammar and rhetoric which all Freshmen and Sophomore pupils must master.

7. Figures of speech: simile, metaphor, personification.
8. Home reading, 3 marks.*
9. Reading report, 1 (written).
10. Memorize "Call of Kansas."
11. Comma rules in *Manual*.

Grade II

1. Grade II in recitations and class exercises.
2. Same as 3-11 in III.
3. Other work: 3 book marks or 3 written themes.

Grade I

1. Grade I in recitations and class exercises.
2. Same as 3-11 in III.
3. Other work: 6 book marks or 6 themes (written), or 3 book marks and 3 written themes.

ENGLISH 3-4

Grade III

1. Grade III in recitations.
2. Grade III in class exercises.
3. Oral themes, 3.
4. Written themes, 3.
5. Comma rules in *Manual*.
6. Adjectives in *Manual*.
7. Verbs in *Manual*, first 24; sentence exercises.
8. Figures of speech.
9. Classic, "Ancient Mariner."
10. Home reading, 3 marks.
11. Reading report, 1 written.
12. Memorize "Ichabod."

Grade II

1. Grade II in recitations and exercises.
2. 3-12 as in III.
3. Other work: home reading, 3 marks, or 3 written themes.

Grade I

1. Grade I in recitations and exercises.
2. 3-12 as in III.
3. Other work: home reading, 6 marks or 6 written themes; or 3 book marks and 3 written themes.

* Each book on the home reading list is evaluated as so many *marks*.

ENGLISH 5-6

Grade III

Reports on following:

Irving: *Alhambra*, 5 stories; *Tales of a Traveler*, 5 stories; *Sketch Book*, 5 stories.

Bryant: 10 poems.

Cooper: one book (home reading).

Memorize "To a Waterfowl."

All class exercises.

Halleck: chapters ii and iii.

Grade II

As under III and 3 book marks or 10 reports.

Grade I

As under III and 6 book marks, or 20 reports, or 3 book marks and 10 reports.

A clear and definite differentiation in the work expected of the pupils for the various grades is made by our teacher of cabinet-work. The following list of projects with their evaluation in points, and the list of instructions are posted where all pupils may read them.

LIST OF PROJECTS, CABINET DEPARTMENT

Project	Points	Project	Points
Phone stand.....	10	Dressing table.....	20-40
Blacking stand.....	10	Music cabinet.....	25
Umbrella stand.....	14	Settee.....	25
Chair.....	18	Morris chair.....	25
Piano bench A.....	18	Rocking chair.....	22
Piano bench B.....	18	Center table.....	15
Piano bench C.....	20	Plate rack.....	8
Medicine cabinet.....	20	Hall tree.....	18
Checkerboard.....	10	China cabinet.....	35
Glove box.....	8	Buffet.....	45
Pedestal.....	12	Sewing chair.....	18
Serving tray.....	8-10	Typewriter table.....	16
Cedar chest.....	20-30	Porch swing.....	20
Library table.....	20-35	Center table.....	20

All projects designed by pupils other than those on the accompanying list must be submitted to the teacher for approval and given the number of points allowed for construction.

Points are arranged according to tool processes, construction, and finish.

REQUIREMENTS IN CABINET-WORK

GRADE III

Thirty-four points must be made with an average of at least 70 per cent.

Any number of the foregoing points may be made by the pupil by doing general shopwork. Part of each pupil's time is to be spent doing general shopwork and credit is to be given according to the amount and quality of the work done.

A pupil must:

1. Form the habit of taking proper care of the tools and returning them to their proper places.
2. Learn that his job is not the only job in the shop and that he must have due regard for the work of others and be careful not to do anything that will injure or prevent another pupil from getting the best results from his labor.
3. Learn that the time that he takes to do a piece of work is often the greatest factor in the cost of the article, and that, no matter what his future line of work may be, his employer will rate his value to him by what he can do, how well he can do it, and how long it takes him to do it.
4. Learn that to work the problems out in the shop correctly requires him to do just as much thinking, just as much planning, as it does to do the work in any of his other classes, and that his shopwork calls for an application of the subject-matter that he is taking in other classes.
5. Learn that he is only a factor in the daily routine of life, and that often it is how well he does his part and how well he co-operates with others that determines the success or failure of the undertaking at hand.
6. Not expect to receive direct answers to questions he asks about work when such answers are found on the drawings, or when the answer may be obtained from some part of the project he has on hand, or by the application of a little systematic thinking and simple mathematics.
7. Make all his construction work substantial, and have all finished parts reasonably well cleaned of all blemishes, and at least one coat of stain, one coat of shellac, and one coat of wax applied.
8. Learn to sharpen all edge tools properly on the oil stone and grind at least one jack plane cutter, one smooth plane cutter, and one chisel.
9. Know the names of all the tools used in the shop, how to set them up and use them properly.
10. Be able to tell the difference between a cross-cut saw and a rip saw.
11. Know the common wood fastenings, common nails, casing nails, finish nails, flat-head, round-head, and oval-head screws.
12. Know what gimlets are and how to tell the size of them.
13. Know what auger bits are and how to tell the size.
14. Know what Forstner bits are and how to tell the size.

15. Be able to file and burnish a cabinet scraper properly.
16. Be able to square up framework by the use of the diagonals.
17. Know what glue is, how it is made, and how to prepare it for use in the shop.
18. Know the kinds of joints commonly used in cabinet construction and how to make them.
19. Be able to recognize the different kinds of wood commonly used in the shop.
20. Know the methods of sawing lumber and the reasons for quartersawing and the advantages to the cabinet-maker.
21. Be able to read a simple working drawing.
22. Be able to make out a bill of material for a small project.
23. Be able to figure the amount of lumber, board measure, that is required to make a given project.
24. Know the use of stains, fillers, shellac, varnish, sandpaper, pumice stone, rotten stone, rubbing oil, and steel wool.

GRADE II

All requirements for a grade of III apply to a grade of II.

Forty points must be made with an average grade of at least 85 per cent.

All construction work must be substantial and well squared up.

All joints must be made properly and well fitted.

All blemishes, pits, plane marks, and saw marks must be removed so that after the stain, filler, and varnish are applied the project has a smooth, clean appearance.

All edge tools used by the pupil must be properly ground by him and sharpened properly on the oil stone.

The pupil must show some ability to go ahead with his work properly without the constant supervision of the teacher.

GRADE I

All requirements for a grade of III and II apply to a grade of I.

Fifty points must be made with an average grade of at least 95 per cent.

All construction work must be rigged well, squared up, and done in a masterly way.

Broad surfaces must be well leveled.

All parts to be finished must be free of all marks that detract from the finish of the product.

All coats of finish necessary to give the right kind of a finish to the project, must be applied properly.

All layouts must be done accurately by the proper methods.

The pupils must be able to work accurately to the given dimensions.

The pupil must show a marked ability to solve the problems in the shop without the aid of the teacher.

For the last half of the school year 1915-16 I asked each teacher to hand to me her distribution of grades. The card used for this purpose follows:

DISTRIBUTION OF GRADES

..... Teacher Date Subject	
		I	II	III	IV
Boys	{ Number enrolled....				
	{ Per cent.....				
Girls	{ Number enrolled....				
	{ Per cent.....				
Both	{ Number enrolled....				
	{ Per cent.....				

From these cards I had graphs made for the various departments and we discussed them at faculty meetings. A large percentage of pupils were getting excess credit. The teachers attributed this to the fact that it had been customary for pupils to make high marks in this school and that pupils met the quantitative assignments.

The year closed with the distribution of grades shown in Table I:

TABLE I

	GRADES			
	I	II	III	IV (Failure)
1915-16....	21.0	27.7	38.7	12.6
1914-15....	33.6	36.8	24.2	5.4

This distribution is far from what is known as a normal distribution, but as compared with the distribution for 1914-15 it was much nearer normal.

The results of the first year's (1915-16) work under the system of quantitative and qualitative credit were studied at the opening

of school this last fall by the faculty as a whole and by departments. The teachers were well pleased with the principle of the system, but felt that the following changes in administering it should be made: (1) If pupils are to be given excess credit for superior work they ought to be penalized for inferior work, but not failed except for very inferior work. (2) The emphasis in urging pupils to do superior work ought to be placed on a higher quality of work and not on a greater quantity of work. (3) Teachers ought to study their distribution of grades and be sure that pupils are assigned the credit due them. (4) Pupils should be made to compete within their own class; that is, Seniors should not be allowed to enter Freshmen classes and get the same credit as Freshmen for the same work.

In conformity with recommendation (1) the credit system illustrated by Table II was adopted:

TABLE II

	GRADES					
	I	II	III	IV	V	VI
Credit value in units	1.2	1.1	1.0	0.8	0.5	0.0
Percentage.....	95-100	85-94	70-84	65-69	60-64	Below 60

The wide range of 70 to 84 per cent inclusive for a grade of III was made because we felt that the pupils who fall within this range would most nearly represent the "average group," if there is such a group, and our work ought to be so planned that this group should be given the normal unit of credit. No credit was assigned to work graded lower than 60 per cent, because we use the plan of supervised study in our school. We have 60-minute periods in the clear. Approximately one-half of the time is given to study and one-half to recitation. The 0.5 of a unit credit should mean that a pupil has done more than merely sit in a recitation room and absorb what is going on. To reach 60 per cent even a bright pupil must put forth some effort. Also the slow pupil by working hard can get at least 60 per cent of the total work.

The pupil's grade card contains the following explanation:

SCALE OF GRADING

Eighteen units of credit are required for graduation, twelve of which must be in group I. (*Group I subjects are the purely academic subjects.*)

A grade of I gives 1.2 units credit. A grade of IV gives 0.8 unit credit.

A grade of II gives 1.1 units credit. A grade of V gives 0.5 unit credit.

A grade of III gives 1.0 unit credit. A grade of VI gives 0.0 unit credit.

Teachers make it clear to the pupils that this fractional credit is an administrative device for rewarding them for efforts expended and that probably outside of this school system it is valueless. As no fractional credit is given in a subject pursued less than a full year, no pupil has to repeat a subject in which he has less than a unit's credit.

A pupil is expected not to make a sequence of a subject in which he cannot earn a unit of credit. The only exception to this is English. In this we shall probably do as other schools have done, viz., enrol pupils according to their abilities.

When we commenced the study of the previous year's distribution of grades this last fall, there was some doubt on the part of a few as to the significance of this work. To get my point of view of this matter before them I issued a bulletin setting forth the leading scientific studies which have been made in the standardizing and distribution of grades.¹ This bulletin was the subject of discussion in the first faculty meetings.

After much discussion of this bulletin we agreed that each teacher should graph her grades before giving them out. The "Distribution of Grades" card shown on p. 319 was devised.

We have not adopted any particular curve of distribution. The distributions for the first three six weeks' periods for this year are shown in Table III.

Various meanings may be read into these figures. According to the testimony of the pupils and teachers of our school they mean that the standards of the classroom work have been raised this year and that pupils are more nearly classified according to their efforts and abilities.

¹ We are compelled to omit the admirable bulletin which Mr. Bailey mimeographed for his faculty.—THE EDITOR.

DISTRIBUTION OF GRADES

(USE ONE CARD FOR EACH SUBJECT TAUGHT)

Teacher				Date				Subject											
	NUMBER GRADED	PASSED WITH GRADE OF III OR BETTER		PERMANENTLY WITHDRAWN		I		II		III		IV		V		VI			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Boys																			
Girls																			
Both																			

N.B.—Determine the per cent to tenths of a per cent. For example: 9.8%.

Be sure your per cents total 100.0%.

(Over)

Please graph the grades shown on the opposite side of this card according to the following key: Show grades of "Boys" by broken lines of "Girls" by dotted lines "Both" by whole line

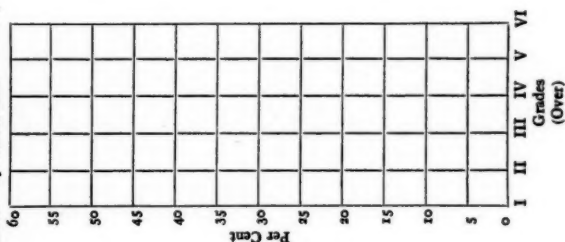


TABLE III

	GRADES					
	I	II	III	IV	V	VI
Credit values.....	1.2 Units	1.1 Units	1.0 Unit	0.8 Unit	0.5 Unit	0.0 Unit
First 6 weeks.....	5.4	21.8	49.0	13.8	6.7	3.3
Second 6 weeks.....	9.0	21.0	49.6	13.3	4.6	2.5
Third 6 weeks.....	9.7	23.9	44.2	15.0	4.8	2.0
Year 1915-16.....	21.0	27.7	38.7	12.6—Failure		

In order that this graphing may not degenerate into a mere mechanical device of shifting grades to make a certain curve to please administrative officers, we are planning this spring to give to all departments tests devised by impartial parties.

Personally, I do not believe that any system of grading and especially a system which utilizes the principle of quantitative and qualitative credit can be successfully operated without giving very careful attention to the distribution of grades.

The matter of sequence referred to above has been met by the following regulation:

With a view to keeping pupils working in the classes where they belong intellectually and to provide for proper sequence—beginning this year—all *Junior and Senior pupils must select at least three-fifths of their subjects from the subjects listed for their respective years. Full credit will be given a pupil for a subject chosen from those listed for the class one year in arrear. Every subject taken two years in arrear of one's class shall be counted toward graduation at the rate of 0.2 unit less credit than the grade value earned:* that is, a fourth-year pupil taking a second-year subject or a third-year pupil taking a first-year subject shall receive only 1.0 unit of credit toward graduation for a grade of I, whereas a second-year pupil or a first-year pupil shall receive 1.2 units' credit for the same grade. *Every subject taken three years in arrear of one's class shall be counted toward graduation at one-half the grade value earned:* that is, a fourth-year pupil taking a first-year subject shall receive only 0.5 unit credit toward graduation for a grade of III, whereas a first-year pupil shall receive 1.0 unit credit for the same grade.

There is still one integral part of the scheme of administering this system which we recognize but which we have worked on only in so far as has been heretofore pointed out in this paper. I refer to the standardization of subject-matter. We believe that every subject in the curriculum should be standardized on some such plan as suggested by Dr. Judd in his address before the North Central Association of Colleges and Secondary Schools in 1916. That is, the subjects should be standardized with relation to each other, with relation to the methods employed in teaching them, and with relation to the subject-matter contained within them. This

is surely necessary before we can feel that varying credit in one school will mean or even approximate in meaning the same as varying credit in another school.

Our experience in administering the system of quantitative and qualitative credit for high-school work has brought us to the conclusion that the principle is sound, fair, and practicable under the following conditions:

1. Teachers should make a practice of putting clearly before their pupils the essential elements, stated quantitatively and qualitatively, which they are going to consider in making up the various scales of credit. This helps pupils to direct their energies more economically and more intelligently, and they will do their work more willingly and with greater interest, and take the grades assigned them with the feeling that they have received what they earned.

2. Teachers must be made to study the distribution of their own grades and the grades of the entire faculty. Possibly it would be well in high schools with large enrolments for the principal with his faculty to decide on some definite mode of distribution similar to those reported in use in the colleges and universities referred to in my bulletin.

3. Pupils must not be allowed to make excess credit in subject-matter which is not intended for pupils of their advanced intellectual attainment.

4. Curricula, subjects, and methods must be more fully standardized before the system of quantitative and qualitative credit can mean the same thing in different schools.

A STATISTICAL METHOD FOR THE TREATMENT OF SCHOOL-SURVEY DATA

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The object of the following pages is to present a statistical method which shall enable the city school superintendent to apply educational test data directly in the solution of those administrative problems which are most intimately concerned with the educational efficiency of the system.

If we consider the administration of a city school system we may discriminate between that administrative work which is concerned with the teaching and learning processes as such on the one hand, and all the other administrative work which is concerned with related but non-educational matters such as the size and location of windows, janitors' salaries, the per capita cost of teaching sewing, school lunchrooms, school taxes, and the like. Thousands of these problems are of administrative importance, but the *raison d'être* of the whole school is the teaching and learning processes, and these should be the central topic of school surveys and school reports.

This strictly educational aspect of school administration may be divided into three separate problems: (1) What is to be taught? This is of course the question of deciding upon the content of the curriculum. (2) How should it be taught? This is the question of deciding upon teaching methods. (3) How efficiently is it actually being taught in this particular city at the present time? This category may be called "educational accounting" to distinguish it from other forms of accounting in which we keep tab on the efficiency of the financial part of the administration.

Closely related to this category of "educational accounting" is that of "educational research." If the relative efficiency of two teaching methods were experimentally investigated, the results

would be generally applicable, and to that extent they would constitute a contribution to educational science. But if we investigate by periodical tests the relative efficiency of a particular school system, a particular school, a particular teacher, or the individual pupil, such work is of course not generally applicable. It does not constitute scientific research. It is simply determining the efficiency with which some particular work is carried out. Such work may be more properly called educational accounting.

In educational accounting there are four separate problems. These involve four types of comparison:

1. The relative rank of the school system as a whole when compared with the teaching efficiency of a large group of school systems, measured by means of educational tests.
2. The relative rank of a school within the city when compared with the teaching efficiency of all the other schools in the same city, the measurements being made by means of educational tests.
3. The relative rank of each teacher in the city when compared with the teaching efficiency of all the other teachers of comparable class in the same city.
4. The relative rank of each pupil in the city when compared with the school and test performance of all other pupils of comparable grade in the same city.

An unfavorable report in the first comparison gives warning to the superintendent that he is not succeeding in maintaining the average scholarship standards of other comparable school systems.

An unfavorable report in the second comparison gives warning to the principal concerned that he is not maintaining the standards of other schools of comparable class.

An unfavorable report in the third comparison serves to warn the individual teacher that her teaching efficiency in the subject concerned is below the average of other teachers in the same city.

The reports concerning individual pupils would be of great service as auxiliary data for determining promotion and the skipping of grades.

Let us consider first the comparison of the school system as a whole with other comparable systems. The data for the accompanying figures, which are only illustrative of the method, were

selected from the Des Moines Annual Report, 1915. In this report (p. 17) we find a table of city average scores in fifth-grade spelling tests, for a number of cities. In Fig. 1 these scores are arranged on the axis of abscissae (horizontal axis). The percentile ranks of the cities are arranged on the axis of ordinates (vertical axis). The use of the chart may be best illustrated by an example. Suppose that the average score in a spelling test given to all the

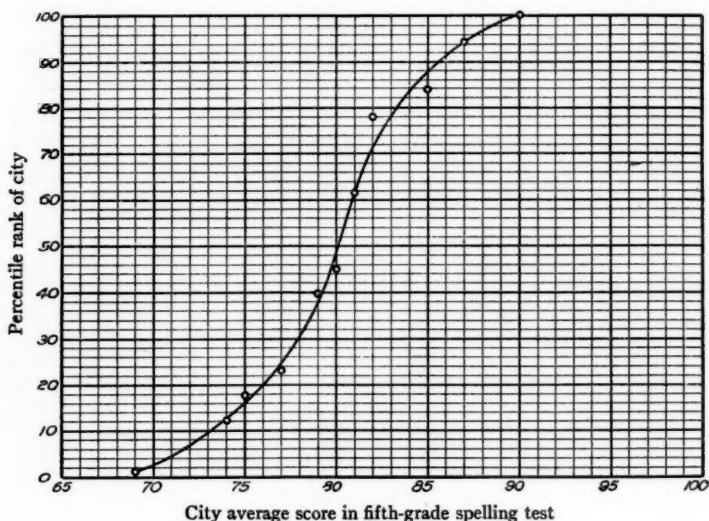


FIG. 1

fifth-grade pupils in a city is 85. Then that city will have a percentile rank of 88 per cent as read from the chart. By this rank of 88 per cent is meant that among one hundred cities, the city in question ranks eighty-eighth from the bottom. There are, then, 12 cities among 100 whose fifth-grade pupils excel in spelling, and 88 cities whose fifth-grade pupils do worse in the same spelling test. If the city average in the fifth-grade spelling test be 80, the city would rank (according to the chart) about 50 per cent, indicating that there are as many cities whose fifth-grade pupils do better as there are cities whose fifth-grade pupils do worse in spelling.

Obviously one city may have a high percentile rank in fifth-grade spelling and at the same time have a low percentile rank in fifth-grade arithmetic. Similarly, the same city may have a high percentile rank in one grade and a low rank in another grade. In order to ascertain the relative rank of a city school system, it would be necessary to give to all the pupils a representative set of tests, and to rate the city system on the basis of an average in which the tests for the various school subjects are pooled. In this manner a percentile chart may be drawn up indicating the relative percentile

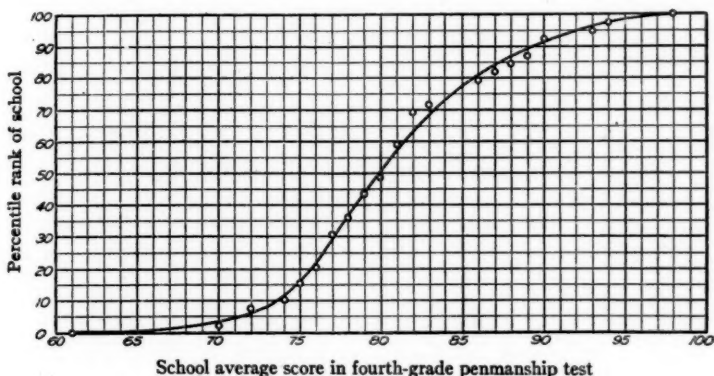


FIG. 2

rank of the city school system as determined by the averages for all the school subjects in all the grades.

In Fig. 2 we have a percentile chart of the various schools in the same city. The data for this table were taken from the Des Moines Annual Report, 1915, p. 83. This particular chart shows the relative percentile rank of the schools within the city system according to scores in a fourth-grade penmanship test. Thus, if a certain school in Des Moines obtains a fourth-grade penmanship average score of 85, the percentile rank of that particular school with reference to fourth-grade penmanship would be about 77 per cent, indicating that 23 per cent of all the schools in Des Moines have better fourth-grade penmanship scores, and that 77 per cent of all the schools in Des Moines have poorer fourth-

grade penmanship scores. Thus the efficiency of any particular school may be measured with reference to all the schools of the city. Obviously the method can be applied to any particular subject, or to any particular grade. The median rank in fourth-grade penmanship among all the schools is, according to the chart, about 80. Any school having a fourth-grade penmanship average of 80 is excelled by as many schools in Des Moines as it exceeds.

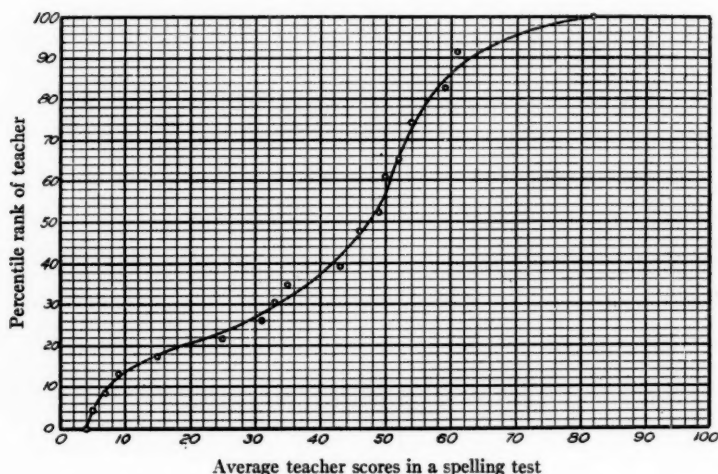


FIG. 3

In Fig. 3 the same kind of chart is plotted for the teachers according to their efficiency in the teaching of spelling. The data are taken from the same report (p. 6). Thus a teacher whose class obtains an average spelling-test score of 30 has a percentile rank of about 27 per cent. This particular teacher is exceeded by 73 per cent of the teachers of Des Moines, while she exceeds 27 per cent of the teachers in the same city in the efficiency of teaching spelling. The average for the whole group is always the score which corresponds to the 50 per cent rank which is in this case a spelling score of 47. Thus any teacher whose class obtains a spelling score of 47 exceeds as many teachers in Des Moines as there are teachers who excel her in the ability to teach spelling.

Obviously the results of such tests as these should be published either in chart form or in the form of tables, so that all the teachers throughout the city may compare the scores obtained by their classes with charts or tables and thus determine just where they stand in teaching efficiency as compared with all the other teachers in the same city. The effect on teaching efficiency would certainly be advantageous.

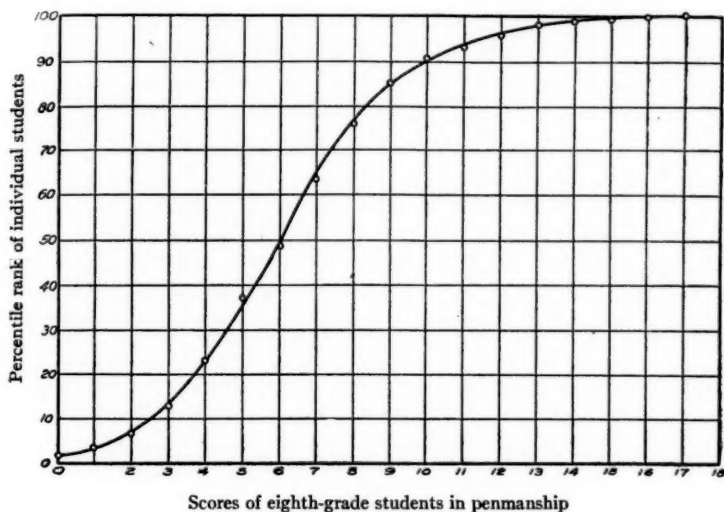


FIG. 4

In Fig. 4 we have the norms of performance of eighth-grade pupils in the city of Des Moines in a penmanship test. (See Des Moines Report, 1915, p. 64.) By means of this chart the relative rank of any eighth-grade pupil with respect to all other eighth-grade pupils in Des Moines can be ascertained at a glance. Thus an eighth-grade pupil who scores 8 in this particular penmanship test would rank about 76 per cent, thus indicating that 24 per cent of all the eighth-grade pupils in Des Moines do better in penmanship, while 76 per cent of the eighth-grade pupils in the same city do worse in this subject.

Obviously these records would be of great service in determining whether several teachers, or several schools, or several cities are using comparable standards in their marking systems. The method could also be used to very great advantage as auxiliary data for determining whether a certain pupil is able to skip a grade. When, for example, a certain pupil who is now in the sixth grade obtains a percentile rank of fifty per cent in all his subjects as rated by the seventh-grade pupils, then the rate of promotion of that pupil should be accelerated so as to place him in that grade where, according to his educational test scores, he most properly belongs. The matter of promotion and acceleration would then be less subject to the hazards of personal opinions of teachers. That the educational tests should not constitute the sole means of determining promotion is, of course, obvious.

In stating the problem in this way we are, of course, assuming that we are able to devise fair tests which, when given to school children, will reveal the efficiency of the teaching. On this question there is room for difference of opinion. We may mention several factors which would naturally be thought of as tending to vitiate conclusions drawn from formal educational tests:

a) That the formal educational test does not measure the inspirational and personal influence of a teacher, and that the tests are necessarily limited to the measurement of the efficiency with which the factual material is pounded into the children.

b) That the standard with which the teaching efficiency is compared is the average of the group and not the ideal one toward which the teachers should strive.

c) That two teachers who are equally efficient may have to work with classes which are not of comparable mental caliber, and that the educational tests would give an unfair showing for the teachers who happen to have the less talented children.

The objection to educational tests on the basis that they do not measure the inspirational and personal influence of the teacher on the children, but only the efficiency with which the fundamental facts are learned, may be fairly answered by admitting the limitations of the educational tests. They do not, of course, attempt to measure anything beyond the efficiency with which the factual

material of the instruction has been mastered. But at the same time it must be admitted that the mastery of the factual material of school instruction, especially in the public schools, is one of the most important, if not the most important, object of the teaching work. Any efforts to quantify the efficiency with which this part of the teaching work is carried out must to that extent be laudable. In addition to this consideration we have the fact that a teacher who is efficient in teaching the factual material is in general the one who has the best personal influence on the children. And vice versa, a teacher who is inefficient in giving the factual material is not likely to be inspirationally and personally superior. The exceptions would probably prove the rule.

One might object, at first sight, that this method of measuring teaching efficiency tacitly sets as its standard the average teaching efficiency of the group of teachers considered rather than a high ideal standard. Not exactly. If the teachers whose classes have average scores considerably below the average of the whole group are notified and subsequently improve their teaching efficiency, the obvious result will be that the average for the whole group will also rise. This sets a higher standard of teaching efficiency for the next test and so on. Hence while the basis of comparison is always the average teaching efficiency for the whole group, that average is not a stationary one, since the teachers represented by the scores below the average either improve or gradually become eliminated, thus continually raising the average score for the whole group. Furthermore, such a standard would be more effective in eliminating inefficient teaching than setting up a high ideal standard of performance to be striven for. The average for the whole group of teachers constitutes a standard for which every teacher in the system is to some extent responsible. Its fluctuation will depend upon their own efforts, and their retention and promotion will depend on their relation to this actual and real standard.

A legitimate objection to this method of classifying teachers is that the score obtained by a teacher depends, not only on the teaching ability of the teacher, but also on the mental caliber of the pupils of the class. Two teachers, one of whom has a class of rather dull pupils with unfavorable home influence while the

second has a class of bright children from homes of favorable influence, can only be rated as having equal teaching ability if the second teacher obtains a considerably higher class average in the educational tests than the first. This compensation for the mental caliber of the class can be determined empirically by means of general-ability tests which do not depend for their successful solution on the purely informative side of teaching, but rather on the general intelligence of the child. If we have available the records of general-ability tests together with the educational tests, which latter apply to specific subjects, it will be possible to find the proper correction coefficient to be applied to the percentile rank of a teacher. If the class is below the average in general ability the average score for the teacher should be raised. If the class is above the average in general intelligence, the class average score for the teacher should be reduced. The precise mode of applying this principle must await the accumulation of records of general ability and of educational tests before the correction can be more precisely stated. The correction will be small in cities where the children from the different sections of the town are fairly homogeneous. It will be larger where the children from different sections of the town differ considerably in general ability.

Even at the present time, lacking complete data, we could arrive at an empirical correction formula from the variations in retardation conditions throughout the town. To begin with, the method of percentile ranks for teachers could profitably be applied in cities where the bright and dull pupils are fairly distributed among the several schools of the city.

It is, of course, obvious that considerable research work remains to be done before the educational tests will be sufficiently standardized to be considered satisfactory for extensive work. The point which I have tried to make is that in the educational tests and in the percentile arrangement of teachers according to the average scores obtained by their classes, we have available a method which, even in its present form, would be of great service in the inspectorial work of our public schools.

ONE YEAR OF SUPERVISED STUDY

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Assistant Superintendent of Schools, Seattle

It has been very gratifying to note the general interest that is being manifested throughout the country in finding some plan of recitation and study that will add to the accomplishment of the dull as well as of the bright pupil. Hearing lessons recited is no longer considered the main function of the teacher. The practice of assigning lessons in a more or less mechanical manner, with little or no knowledge as to how they are to be prepared, is rapidly becoming antiquated in a modern school system. Supervised study offers an excellent opportunity for the intelligent teacher to give a new interest and meaning to our old form of recitation, which often fails to reach the real difficulty of the backward pupil and retards the pupils who are more efficient.

The forty-five-minute class period does not provide sufficient time for the development of a recitation that can be satisfactorily combined with any form of supervised study. A ninety-minute period is objectionable from the administrative standpoint because it necessitates an additional teaching force and lengthens the school day beyond the time that is of advantage to the pupils. After careful consideration the Seattle high-school day was made to consist of five sixty-minute recitation-study periods. In the academic subjects not more than the first forty minutes of a period are used for the recitation, and the remainder of the period is spent in supervised study. It is not expected that home study will be eliminated, but rather that it will be *directed* far better than has been the case heretofore.

The two general characteristics usually given for conducting supervised study are, first, to find the source of the difficulty of the pupil who is struggling with the lesson, and secondly, to guide him properly *without giving too much assistance*. Each pupil's problem

is worked out with him individually as far as possible and is not permitted to interfere with the work of the class as a whole. The brighter pupils are given extra assignments which encourage them to work up to their capacity. This can easily be done during the hour period without interfering with the regular lesson development.

At the conclusion of the one year's experience with supervised study in our high schools I wish to submit the results of the plan in the Broadway High School.

The increase in enrolment in the subjects that were formerly given double periods is shown in Table I.

TABLE I

Subject	First Semester 1915	First Semester 1916	Percentage of Increase
Commercial.....	872	1,190	36
Zoölogy.....	12	36	200
Physics.....	177	186	5
Chemistry.....	78	116	49
Manual arts.....	181	362	100
Art.....	102	200	96
Cooking.....	76	80	5
Sewing.....	152	217	43

Table I shows an increase of 25 per cent in the number of subjects taken up by pupils, while the increase in the school enrolment was but 10 per cent. This increased subject enrolment was due in large measure to the abolishment of the double period and to the fact that Freshman pupils under the supervised-study plan were able to carry *four studies acceptably*, whereas formerly they were advised in most cases to attempt but three subjects.

The effect upon the cost of individual subjects is worthy of attention and is shown by Table II.

The scholastic records show that there has been a considerable improvement in the number of subjects passed by the pupils. This has been particularly true with regard to the two lower classes.

Table III shows the combined number of subjects passed for both semesters in the Broadway High School for the years 1914, 1915, and 1916.

TABLE II
Broadway High School—1915 and 1916

Subject	Pupils per Teacher		Square Feet Floor Space per Pupil		Cost per Pupil	
	1915	1916	1915	1916	1915	1916
English.....	111	125	4.8	4.6	\$22.60	\$18.83
Mathematics.....	106	122	6.9	5.2	24.16	20.11
History.....	112	126	5.1	4.8	23.33	19.48
Latin.....	89	108	4.2	4.3	25.41	22.21
German.....	95	116	4.7	4.2	28.93	21.01
French.....	96	103	4.3	4.8	24.59	22.45
Spanish.....	84	109	7.4	5.0	28.80	19.78
Commercial.....	89	145	11.0	6.9	29.48	19.51
Physiography.....	133	110	8.4	12.3	22.61	26.81
Physiology.....	80	118	13.4	11.5	27.24	24.49
Zoology.....	30	120	31.2	13.9	63.63	24.69
Botany.....	60	112	22.8	12.2	40.76	26.44
Physics.....	56	93	30.0	23.7	46.06	30.20
Chemistry.....	62	83	24.4	17.3	51.77	29.41
Manual arts.....	39	74	94.5	36.4	80.85	43.79
Art.....	51	91	23.0	16.4	51.86	31.45
Cooking.....	51	80	28.0	20.9	44.22	30.02
Sewing.....	61	109	17.7	10.6	36.26	23.95
School.....	90	117	16.3	13.4	\$28.53	\$22.26

NOTE.—The cost per pupil in each department is about \$5.54 less than the above amount. The \$5.54 was added to cover the items of general building expenses for heating, lighting, repairs, power, janitor service, and interest on the parts of the building that are for general, instead of departmental, uses, and the salaries of the employees in the study hall, library, gymnasiums, and principal's office.

TABLE III
SUBJECTS PASSED BY BOTH BOYS AND GIRLS IN BOTH SEMESTERS

	1914	1915	1916
First year.....	4,126	4,542	5,202
First two years.....	6,950	7,235	8,669
All four years.....	9,751	10,480	11,838

Table IV shows the failed subjects at the Broadway High School for the years 1914, 1915, and 1916.

TABLE IV
SUBJECTS FAILED

	1914	1915	1916
First year.....	529	590	517
First two years.....	725	753	673
All four years.....	854	936	873

Table V shows the percentage of subjects failed for the years 1914, 1915, and 1916.

TABLE V
PERCENTAGE OF SUBJECTS FAILED

	1914	1915	1916
First year.....	11.4	11.5	9.0
First two years.....	9.5	9.4	7.2
All four years.....	8.1	8.2	6.9

Table VI gives the tabulation of the improvement of scholarship made in 1916 compared with 1915.

TABLE VI
IMPROVEMENT IN 1916 OVER 1915

	Greater Number Passed	Less Number Failed
First year.....	750	63
First two years.....	1,434	80
All four years.....	1,259	63

You will notice that by far the greatest improvement in scholarship was made during the last year, when we had supervised study. In other words, the pupils of the school as a whole are taking more work and, as far as passing is concerned, are accomplishing it better than heretofore. Under the supervised-study plan the first-year study failures have been reduced over one-fifth and the first two-year study failures over one-fourth from 1915 to 1916. The enrolment for the three years considered was as follows:

1914.....	1,740
1915.....	1,816
1916.....	2,006

This increase in the enrolment each year should be taken into consideration in considering the number of students passed and failed each year.

In compiling reports from the teachers as to the value of supervised study, I quote the following:

I. What has been the effect of the one-hour study-recitation period on the following?

a) The preparation of your pupils for their class work.

Better.....	43
Worse.....	3
Same.....	11

b) The amount of efficient help you are able to give your pupils.

More.....	45
Less.....	9
Same.....	1

c) The amount of ground they are able to cover well as compared with last year.

More.....	20
Less.....	5
Same.....	35

d) The standard of the work you are able to require of the classes.

Higher.....	34
Lower.....	3
Same.....	20

II. Would it be of any added benefit to have the study period before instead of after the recitation?

No.....	54
Occasionally.....	1
Yes.....	1

In nearly every case where teachers reported adversely to the plan it was due to the fact that they had formerly had laboratory subjects which were given two forty-minute periods each day and were required to adjust the work to the sixty-minute period schedule.

THE EDUCATIONAL QUALIFICATIONS AND TENURE OF THE TEACHING POPULATION. II

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C. THE EXPERIENCE OF THE TEACHING POPULATION

The data to be found on the experience of the teaching population are likewise meager and difficult to obtain. Foght found that the average age of the rural teacher when beginning was 19.2 years, which would preclude a very wide acquaintance with the social or intellectual environment and organization of the school. Coffman states that "every third man and every second woman engaged in teaching is under twenty-four years of age. At least one-half of the teachers of this country are little more than boys and girls" (10, p. 235). Not only is there this lack of maturity and lack of academic and professional preparation, but the length of time spent in teaching is insufficient to get beyond the crude apprenticeship stage. Coffman states that one-fourth of the teachers have had only one year of experience, and one-half have had four years or less. Coffman and Jessup concluded from their study of the teachers in the high schools of the North Central Association that "the immaturity and lack of wide experience is shown by the fact that 13 per cent of these teachers have had one year's experience or less; 20 per cent have had two years'; 29 per cent have had three years' experience or less. In cities of 2,500 and under, one-half had under three years; 5,000 and under, one-half less than four years; the median experience ranges from three to eight years, the more experienced being in the large cities" (15, p. 98). Shideler found that the percentage of teachers without experience varied indirectly, and the median years of experience varied directly, with the size of the city. Cities of 2,500 or less had a much larger percentage of inexperienced teachers, and the median years of experience was also much less than for larger cities (7). Coffman found that 77

per cent of the rural teachers, 44 per cent of the town teachers, 44.65 per cent of the teachers in cities of 8,000 and over, and 28.6 per cent in cities of 100,000 and over teach five years or less (11).

Table IV presents the percentage of teachers with the number of years' experience from the few states that furnished complete data. From this table it may be noted that the central tendency is three years or less. The black bars in Chart IV represent the percentage of teachers with three years' experience or less and the figures in the unshaded part give the percentage with more than three years' experience. The average of the ten cases is 50 per cent with three years' experience or less.

TABLE IV
NUMBER OF YEARS' EXPERIENCE
(Figures show percentages)

State	Less than One Year	One Year	Two Years	Three Years	Four Years	Five or More Years	Total Three Years or Less
Iowa (1915).....	24.4	12.9	12.7	9.5	9.4	31	59.6
Louisiana (1913-14).....	15	15	15	15	11	44	45
Missouri (1913-14).....	14	12	11	10	8	45	47
Missouri (1915):							
Town.....	8	8	9	7	8	60	32
Country.....	23	18	14	10	8	27	65
Wisconsin (1915):							
Rural.....		28	21	15	11	25	64
State graded.....		12	11	15	13	49	37
Grades below high school.....		19	17	13	10	41	49
High school in country.....		23	16	14	9	38	53
High school in city.....		19	16.4	14.3	9.6	40.7	49.7

Just how much value should be placed upon experience in the measurement of teaching efficiency seems debatable. Coffman holds that the greatest correlation between teaching and salary is at six years; increase in salary after six years depends on factors other than experience (11). Boyce maintains that teaching experience is less important than instructional skill, studiousness, or discipline. However, "experience is an important factor in modifying teaching ability. No elementary-school teacher ranked first or second with less than five years of experience. Among high-school teachers three years was the maximum for good teachers. The average experience of elementary-school teachers for the first and

} = 113.

second classes was 13 years, and for the last two classes 8.5 years. The average experience of high-school teachers for these corresponding groups was 11.8 years and 6.39 years, respectively" (16, p. 156). According to Ruediger and Strayer:

The positive correlation between length of service and general merit is significant. . . . No teacher ranked either first or second who had taught less than five years, and only 4 per cent had taught more than 25 years. . . . 70 per cent of the teachers in the first rank, 69 per cent of those in the second rank, 40 per cent of those in the second lowest rank, 30 per cent of those in the lowest rank, had taught 10 years or more. This indicates either that teachers keep on improving and passing on to higher rank, for at least ten years, or that the poorest teachers are gradually eliminated from the service. Both factors play a part. From the figures as a whole one may infer that a teacher in the grades reaches first-class efficiency in about five years, and that she maintains this efficiency for about 20 years, and that after about 25 years of service she begins to decline [17, p. 276].

Thorndike holds that experience beyond the fourth or fifth year does not add greatly to the efficiency of the public-school teacher. Yet "the premium on experience has the administrative advantage of encouraging the adoption of teaching as a permanent profession and of preventing frequent changes in the local teaching staff" (18, p. 41).

D. STANDARDS OF QUALIFICATION

A comparison of the educational qualifications and tenure of our teaching population with that of some of the continental countries may aid us in understanding what ought to be our standard of qualification. The rise of modern Germany to a vantage point in every field of activity in the world's work is due to an effective school system and a thoroughly trained corps of schoolmasters. Since the Franco-Prussian War, France has reorganized her schools and trained her teachers for the rejuvenation of her national resources. But we need not limit ourselves to these two world-powers whose present prowess is the result of intensive education: the two small nations, Switzerland and Denmark, afford ample material to prove that the real wealth of a nation lies, not in the abundance of its natural resources, but in a thrifty, intelligent people.

The following short citation from Professor Tate's study of Swiss schools presents a sharp contrast to our teacher problem:

To an American one of the most impressive things connected with the Swiss school system is the stability of the teaching profession. Three-fourths of the teachers are men, and practically all the teachers whom I met have engaged in the business as a life-work. Teaching is rarely used as a stepping-stone to some other profession. There is very little shifting of the teaching force from place to place. I spent ten days with a school inspector in Canton Berne. He has 240 teachers under his supervision; only 12 of them were teaching for the first year in the position which they held. It is no unusual thing for a teacher to spend a long life in one position.

Admission to the teaching profession usually means graduation from the teacher's seminary, which requires for entering an eight- or nine-year course offered in the common schools. Teachers in the Gymnasium or the Middle Schools are usually university graduates. After securing a certificate the Swiss teacher usually acts as a substitute for a year or two before finally being elected to a permanent position [19, p. 27].

Within the last half-century the decadent life of Denmark has been rejuvenated through the work of her schools with an efficient corps of teachers. These teachers must have completed the course of study at the normal school or university before being appointed permanent teachers; non-graduates may serve as apprentice teachers or assistants, but not as regular teachers. Out of 3,812 men, only 141 were non-graduates; out of 1,453 women, 438 were non-graduates. Out of a total of 5,265 teachers, 579 were non-graduates. This presents a sharp contrast to our condition; Louisiana (1913-14), for example, has approximately the same number of teachers, 5,658, yet 3,264 are non-graduates. A second contrast is with regard to the maturity of the Danish teachers. Men teachers twenty-four years old or under constitute only 7 per cent of the total; twenty-nine years old or under, 20 per cent; thirty-nine years old or under, 50 per cent: that is, half of the men teachers are forty years old or over, mature men giving instruction to youth. Women teachers twenty-four years old or under constitute 23 per cent; twenty-nine years or under, 48 per cent: that is, over half of the women teachers are more than thirty years old, and are mature enough to be real leaders in the life-problems of youth (see p. 18). Since teaching is a permanent

profession, the teachers feel that it is worth while to grow up with a place, and seldom serve less than ten years in the same community.

Professional training and long tenures have been wrought with great influence on the rural community life. The teachers are trained for country life and understand its needs. They enter upon their tasks, knowing that they have time to rear well and fundamentally. This results in a community leadership which cannot be hoped from peripatetic teachers, as is the case with teachers in most American school districts who remain in country schools for a term or two, and use them as stepping-stones to town-school teaching or other occupations. Danish rural districts can count hundreds of teachers who would not exchange their positions for a first-class inspectorship in Copenhagen—all because they have been enabled by these fortunate arrangements to hew out for themselves, where they are, an important niche in the educational life of the people [20, pp. 138-40].

In our educational world there is a general acceptance of Schurman's assertions that "we cannot teach what we do not know," and that "we cannot teach as much as we know," for much is lost in the process of transition. Hence it is generally agreed that a teacher should at least have completed the division of our educational system above that in which she would teach. Thus it is not too much to demand that elementary teachers should have completed the high school. Present opinion would add that professional training in an approved teacher-training institution is a necessary part of an adequate preparation. For high-school teachers, it is not too much to demand that they have completed a college course or its equivalent. Present opinion would add that they should have special training in the subjects they would teach, together with instruction in the principles and practice of teaching.

A decade ago low standards and lack of uniformity, according to Cubberly, were the chief weaknesses of our system of certification. "In more than half of the states of the Union it is possible to secure a teacher's certificate and become a teacher with no other educational equipment than a knowledge of the common-school subjects—the merest rudiments of an education. In about one-fourth of the states no examination upon topics of a professional nature is required, and the prospective teacher apparently is not expected to know anything as to the professional side of his or her calling" (9, p. 29). Just how much has been gained in these ten

years can only be conjectured; however, the following citations indicate a hopeful awakening.

After May 1, 1917, Idaho makes high-school graduation the standard requirement for all applicants for county certificates. Since July 1, 1915, Iowa has required all applicants to have at least 12 weeks of normal training. Kansas has been raising her standards until she now demands that after May 1, 1919, all teachers shall have at least a high-school preparation. Excepting those with 18 months of successful experience, or graduation from normal or college, after August 1, 1915, all candidates in Minnesota "must have completed a professional course of training for teaching—but not to exceed 36 weeks" (21, p. 393). Missouri has been raising the standard until she requires all applicants after September 1, 1916, to have completed three years of an accredited high school or equivalent; after September 1, 1918, such applicants must have completed four years or equivalent (21, p. 397). In Ohio, applicants for life certificates after January 1, 1915, shall possess the equivalent of one year in normal or college, and after January 1, 1920, two years of such work, not less than one-fourth of which shall be in educational subjects.

Applicants for a one-year or a three-year elementary, high-school, or special certificate shall possess professional training not less than the following: after January 1, 1915, not less than 6 weeks of classroom instruction in recognized institution for training of teachers; after January 1, 1916, 12 weeks; after January 1, 1917, 18 weeks; after January 1, 1918, 24 weeks; after January 1, 1919, 30 weeks; after January 1, 1920, 1 year. Applicants for a one-year or a three-year elementary certificate shall have had at least 1 year's training in approved high school, and after January 1, 1920, 2 years of such training. Applicants for a one-year or a three-year high-school or special certificate shall have had at least 1 year's training in approved high school; after January 1, 1920, certificates of graduation from a first-class high school [21, pp. 408-9].

Oklahoma requires:

After January 1, 1916, no person shall receive a third-grade certificate who has not had an academic training equivalent to one year in an approved high school or at least 10 weeks in an approved professional school . . . no second-grade certificate unless two years of high-school training, or 20 weeks of professional training; no first-grade unless three years of high-school training, or 36 weeks of professional training [21, p. 412].

Wisconsin has made the following specific requirements:

On and after July 1, 1915, no person who shall not have taught in a public school for at least one year shall be granted a country or city teacher's certificate, unless, in addition to passing subjects required by law for such certificate, he shall have completed the state common-course of study, or its equivalent, and shall have had two additional years of instruction in training, one year of which, or its equivalent, shall have been devoted to teacher's professional studies, but graduates of four-year high schools not maintaining training course for teachers shall be required to have one year of training in professional studies, such two years of additional training may be obtained at a state normal school, a county training school, or a free high school having an approved course of study for teachers . . . [21, p. 426].

Since 1907 Indiana has required all beginners to have completed high school and have had 12 weeks' professional training. For the three-cent wage 24 weeks of professional work is required; and for the three and one-half cent wage, graduation from a teacher-training institution. New York demands that—

no person shall be employed or licensed to teach in primary and grammar schools of any city or district employing a superintendent who has not had successful experience in teaching for at least three years, or in lieu thereof has not completed prescribed course in a state normal school of the state, passed an examination for and received a life state certificate, completed an approved high-school course of not less than four years, and in addition an approved professional course of not less than two years [21, p. 405].

California has reached the highest standards, in that elementary teachers must have high-school preparation and full normal training, and high-school teachers must have completed college and have one year of graduate study, one-half of which is in educational work.

Our educational experience has taught us that low standards of certification and low wages go together. As long as low standards of certification and low wages dominate our school system, so long must short terms of service and constant recruiting of the ranks characterize our teaching population. Many superintendents state that the best-prepared teachers remain longest in the profession, though they offer no statistics showing the extent of this factor. The history of education, including the present-day systems of France and Prussia, shows that the social status of the teacher varies directly with the professional training and fitness on

the part of the teacher, and adequate return in salary and social esteem on the part of the state (22). The requirement of higher standards of certification is an educational problem; the payment of a just wage is an economic problem depending for its solution on how much money the state will pay for professional training and fitness. If the state required high qualifications and gave in return adequate salary and social esteem, including tenure during efficiency and freedom from dread of dependency and old age, teaching would become not only a stable, but a learned profession, for, as the experience of France has demonstrated, with small need for recruits, training schools could then provide trained teachers for all vacancies.

E. SUMMARY

In the section on the educational qualifications of the teaching population the statistics showed that the educational unpreparedness of the teaching population was the most serious weakness in our school system. Table I and Chart I give for the states represented 60 per cent with high-school preparation or less, and 40 per cent with more than high-school preparation, only a part of which can be called professional training. Owing to recent legislation requiring professional training, Wisconsin, as presented in Table II and Chart II, has a much higher proportion of teachers with more or less professional training.

Chart V presents the data on the educational qualifications, tenure, and experience from states able to furnish data on two or more of these topics. Column I gives in black bars the percentage with preparation beyond the high school, which includes more or less professional training; the striped bars indicate the additional percentage with full high-school preparation. Louisiana had insufficient data for the high-school education column. Missouri shows that 72 per cent of town teachers and 21 per cent of the country teachers were high-school graduates—a part of whom are included under professional training.

Column II presents the percentage of teachers who taught in the same district two years or less. The average of the ten cases is 54.25 per cent serving two years or less in the same district. This is in agreement with the findings in the preceding section that

rural teachers remain less than two years of 140 days each, that 40 per cent of high-school teachers are new each year, and that 50 per cent have a tenure two years or less, and superintendents have a median tenure of barely two years.

Column III states the percentage with three years' experience or less. The average of the nine cases is 50.7 per cent with three years' experience or less.

Just how much correlation there is between the three topics has not been worked out. In the case of the town teachers in Missouri with 74 per cent with professional training and 72 per cent with high-school preparation, only 42 per cent have served two years or less, and only 32 per cent with three years' experience or less. In the city schools of Wisconsin only 38.5 per cent have served two years or less; data for total experience would probably have shown the same tendency. In the country schools of Missouri with 56 per cent having some professional training and 21 per cent with high-school preparation, 84 per cent have served two years or less and 65 per cent have three years' or less teaching experience. In the Wisconsin rural schools with 50.7 per cent with professional training, 88 per cent have served two years or less, and 66 per cent have had three years' or less teaching experience. There seems to be a closer correlation between training and total teaching experience for shift of position depends on things other than preparation. In order to raise the standards of qualification, it will be necessary to require that teachers secure adequate academic and professional training for the special work of teaching; that communities make it more profitable for teachers of merit to remain permanently in their service; and that the state raise standards of certifications and give salary and social esteem sufficient to retain permanently in the profession those persons specially fitted by nature and training for the high calling of the instruction of youth.

CONCLUSIONS

The following are some of the more obvious implications suggested by the foregoing data:

1. Education administrative agencies do not have sufficient funds available for the collection and tabulation of statistical data on educational problems.

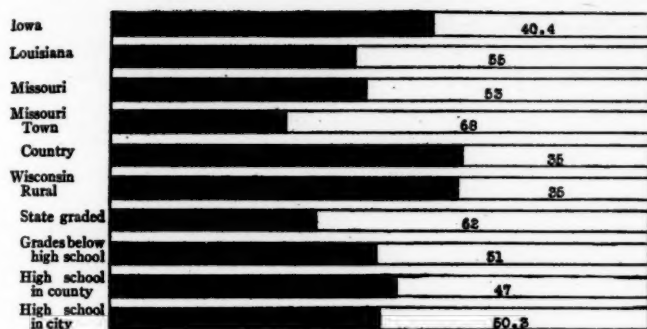


CHART IV.—Black bars indicate three years' experience or less; figures indicate percentage with more than three years' experience. Figures show percentages.



CHART V.—Summary of the preceding tables

Column I: Educational preparation. Black bars, professional training; stripes, high school.—
Column II: Length of service in same district, horizontal bars, two years or less.—Column III: Years
of experience, diagonal bars, three or less.

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2. The data generally collected are insufficient to cover the whole field of educational problems, and their arrangement curtails much of their usefulness. One notes with great interest the growing tendency to remedy the above objections, e.g., the reports of Missouri and Wisconsin.

3. The available data on the educational qualifications of the teaching population indicate a serious lack of academic and professional training. In some parts of the United States the average education of teachers is not above the seventh grade; in general, 60 per cent or more of the teachers have not completed a normal or college course. Rarely has practice come up even to the minimum standards raised for entering the ranks.

4. The constant shift and short tenures of teachers and administrative agencies prevent the development of a permanent, well-laid educational policy either in a community or in a commonwealth.

5. However much or little we value experience, we must conclude that the total term of teaching service is far too brief for the majority of teachers in the United States to have passed through the crude apprenticeship stage.

6. The present educational tendency demands both academic and professional training for teachers, longer tenure in a position, and permanent service in the profession. Comparison with Continental countries reveals the fact that we have neither a learned nor a stable, mature teaching population. In Chancellor Eliot's happy phrase, "We do not have a teaching profession so much as a teaching procession."

A CO-OPERATIVE INVESTIGATION IN THE TESTING AND EXPERIMENTAL TEACHING OF FIRST-YEAR ALGEBRA

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In the *School Review* for February and March, 1917, the present writers announced plans for the complete revision and reprinting of the "Standardized Tests in First-Year Algebra." We now wish to announce that these tests have been revised and reprinted in the light of careful experimentation, and that they are now being distributed, at cost, by the School of Education, University of Chicago, Chicago, Illinois. Samples of these tests will be sent without charge to teachers and administrators who request them.

In their complete form the tests cover sixteen fundamental operations. In addition, there are two preliminary tests which can be given prior to the formal testing to familiarize pupils with the routine of taking "time" tests. The formal tests are printed in compact, easily handled form, as follows: Tests I-IX inclusive and X-XIV inclusive are printed in two $4\frac{1}{2}'' \times 7''$ booklets, and each booklet is planned so as to fit a class exercise of forty minutes. Tests XV ("Graphs") and XVI ("Quadratic Equations with Irrational Roots") are supplementary tests on single sheets that can be given to those pupils who have completed that work. The verbal tests are in the form of lists of "translation" problems, the difficulty of each of which has been scored, and which can be put together easily, in a test, by the teacher. The tests have now been made to include each of the fundamental operations shown in list on p. 347, which have to be mastered in first-year algebra.

The *price* of the tests has now been set at 4 cents per set. This price merely covers the expense of printing and handling. The tests have been designed primarily in the interest of improving the

teaching of algebra. No profit is being made on them. In ordering tests, order a set for each pupil. A set includes (1) Books I and II, containing Tests I-XIV; (2) Supplementary Tests XV and XVI on single sheets; (3) Preliminary Tests A and B. With each order will be included in sufficient quantities (1) complete printed directions for giving and scoring the tests; (2) printed score sheets for records of individual pupils; (3) printed class-record sheets on which class averages can be computed easily; (4) tentative standard scores obtained with these tests in 27 school systems; (5) lists of verbal problems which have been scored for difficulty.

BOOK I		BOOK II	
Test No.	Operation	Test No.	Operation
1.....	Collecting terms	10.....	Fractional equations
2.....	Substitution	11.....	Practical formulae
3.....	Subtraction	12.....	Quadratic equations
4.....	Simple equations	13.....	Simultaneous equations
5.....	Parentheses	14.....	Radicals
6.....	Special products		
7.....	Exponents		Supplementary Tests
8.....	Factoring	15.....	Graphs
9.....	Clearing fractions	16.....	Quadratic equations (irrational roots)

The chief function of standardized tests is that of "diagnosis." They enable us to locate easily and definitely the difficulties which our pupils encounter in learning algebra. A complete source list of such difficulties can be found in the *School Review* for March, pp. 207-10.

ANNOUNCEMENT OF CO-OPERATIVE EXPERIMENT IN TEACHING ALGEBRA

It was pointed out in the *School Review* articles that the design and giving of standardized tests merely paves the way for the experimental teaching of algebra. During the past year the writers have been designing and trying out various methods of using practice exercises for the perfecting of skill in the formal operations. By the end of the present school year a complete plan will be ready for those who wish to undertake a co-operative study of "best ways of teaching first-year algebra." During the first year of the study attention must be centered largely on the perfecting of

habits in manipulating the formal operations. A system of practice exercises has been developed from classroom experimentation. These will be sold at cost at the beginning of the next school year. The exact use of these in the presentation and habitualizing of the formal operations will be set forth in the "Experimental Plan" which will be sent to those who are interested in co-operating. The co-operative study will include: definite teaching problems concerning methods of presenting various operations; the best time to introduce formal practice material for the perfection of skill in each operation; the optimum amount of time to be given to formal drill; the determination of the most effective number of recurring drills on each operation and the elapsed time between them; the recurring use of the Standardized Tests throughout the school year (for this purpose the tests will be printed and sold on separate sheets at the lowest possible price). It is clearly recognized that the largest emphasis must be placed on the reasoning side of learning algebra. In order to make progress in that direction, we must first answer these important questions concerning the perfecting of the tool processes. As soon as definite results appear from the use of the formal material, the attention of the investigation will be centered on the application of formal skill to the solution of reasoning problems. We shall not lose sight of the ultimate aim of teaching our subject, but at the same time we shall recognize clearly that our first job is to determine ways and means of raising the present low degree of skill that our pupils exhibit in using the formal operations. If you are interested in this co-operative experiment address H. O. Rugg, School of Education, University of Chicago, for information. It will be sent before the end of the school year.

ROUND TABLES ON THE TEACHING OF ALGEBRA

Personal conferences or "round tables" of those collaborating in this study will be held at various centers throughout the country, beginning with the next school year. For those situated near Illinois, the first of these conferences can be announced definitely to be held in connection with the University of Illinois High School Conference at Urbana, Illinois, in November, 1917. At these round tables specific questions of teaching, problems and issues

arising in the carrying on of the experimental study, will be discussed by those who are taking part. The aim is to make these conferences real "clearing-houses" for the best thought of progressive teachers of algebra on their own classroom problems. Those who are now giving their time to the carrying on of this work desire to get an expression of opinion concerning the best places and times of meeting for such round-table conferences in various portions of the country.

STANDARDIZING THE DIFFICULTY OF VERBAL PROBLEMS

The writers need the immediate co-operation of many algebra teachers to standardize the difficulty of large numbers of verbal problems. *Who will devote one period of his class time within the next month to the giving of a list of verbal problems to his pupils?* Please write us if you can help, stating the number of pupils in your classes. We will bear all expense. You will be asked to do nothing but to give the problems to your pupils in accordance with our directions, and to return the papers to us.

STANDARDIZED TESTS MUST NOT BE COMMERCIALIZED

In closing this announcement may we not urge the co-operation of teachers generally in combating the *present tendency to commercialize testing and practice material?* The *measuring and experimental movement* probably is the most promising movement for the improvement of school practice that we have seen in our own day. *It must not be commercialized!* This point is emphasized in view of the recent tendency to sell for profit so-called "standard" tests and "scales." Tests are being printed and distributed in large quantities *for profit*—tests which have not been subjected to careful and critical analysis, and about the details of the derivation of which the educational public knows little and can find out little. *It is reported definitely that this is to be done in algebra!* Tests that have been carefully and truly "standardized" provide us with a most valuable experimental device for the improvement of teaching. Tests that are not "standardized"—that is, those for which it is not known exactly what they measure and how they measure it—pretend to do something which they do not do. This must be detrimental to the advancement of the movement for the experimental study of teaching problems.

THE EFFECTS OF TRAINING DOWN IN WEIGHT ON THE GROWING BOY AND HOW TO CONTROL OR ABOLISH THE PRACTICE

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Until recent years the practice of training down in weight for various physical contests has been confined to a very few. Some of us have seen men who have trained down in order to be under the weight limit for coxswains, jockeys, and professional boxers and wrestlers. We have heard some remarkable tales of hardship, deprivation, work, mechanical and medicinal treatment through which these people have gone, and yet we have few facts with regard to the practice or to the results obtained. We have read in papers and periodicals of the premature deaths of several of these contestants; we have read of severe illnesses which have been laid to the practice, and even of deaths through various diseases—the prevailing opinion being that resistance to disease was so diminished through the practice that the disease had its own way. We have given the matter scant attention, for the practice has been limited to the few. The class of people practicing training down has frequently been such that it did not seem to matter much whether they lived or died. We have felt that reports have not always been reliable, and that the habits of some of them have been such that their lives would necessarily be shortened anyway.

But when the practice comes directly home to us, as it has in recent years, when it attacks our own friends, relatives, or students, our interest is awakened. We condemn the practice when adopted by others, but in a "pinch," i.e., when we "simply have to win" a certain event, we are inclined to take the chance and train down our young athlete, feeling that it is "only a matter of a few pounds" and "for only a few weeks." We always think we have a good

reason or excuse for our actions, although we do not care to discuss the process with our friends, our boys' parents, or our opponents. We do not care to publish along with the list of winnings and losings a statement of the health of the contestants over a period of three or four years; and we do not take the time to follow up these boys to ascertain whether they are better or worse for their experiences at our hands.

A few years ago some of us became weary of several of the old practices of physical training, particularly that phase of physical training called athletics. Many of us realized that we were doing nothing for our young men; that after school or work hours there was practically nothing of interest save the dance, the pool halls, occasional social events, and loafing (last but not least); that something must be done to train and develop, yes, to save, the young men during their teens. Accordingly, we laid down, or possibly resurrected, a few principles such as these: (1) If athletic sports are good for a few, they are good for all. If they have educational value for a few, they have such values for nearly all. (2) We should not place our major effort on the few strong individuals who need physical training the least, but should extend our efforts to include all the students. Let the star athletes work out their own salvation, and let us do something for the less fortunate individuals who are not strong, or well, or well formed. (3) Athletics well supervised or governed has decided educational value. Unsupervised, or on a low plane, athletics has no value save a possible physical one, and even this may be offset through bad habits learned while participating in competition.

When we found that these principles had once gained a foothold among us, we proceeded to organize in school, church, social center, playground, Y.M.C.A.'s, clubs, and turnvereins in such a way that all might have a chance. We organized teams and leagues with certain weights as upper limits, and, at times, combined both age and weight as a limit. Some of us limited by tests of skill, such tests being made by means of the tape measure or the stop watch. Thus we added one more to our already cumbersome list of eligibility rules.

Americans love to "beat the game." This attitude seems to be more prevalent in the United States than in any other country. We will "go up against" the other fellow's game even though defeat stares us in the face. We like to take on odds and then win. We like to win at any cost. When, therefore, we put handicaps of weight and age on some of our boys, all agreed that the system was a grand one and we proceeded to organize our teams accordingly. Then we found a boy here and there a few pounds over weight. This boy, by virtue of his greater weight, was also a star performer. We *must* have him on the team in order to win. So we proceeded to "beat the game." We juggled the scales and were caught. We tried rules of weighing in only once a season and found this method a bad one. We tried weighing in once in two weeks and beat the game at this. Then we weighed in just before every game and to beat this we had to train down to the required weight limit.

This operation of training down has been practiced by nearly every school that has competed in outside athletics with other schools. Various methods have been tried. Some of the more common methods of training down are as follows:

1. Reducing the amount of food and water for twelve to twenty-four hours prior to weighing in.
2. Reducing the amount of food and drink over a period of several weeks or months.
3. Practicing or training extremely hard and for long hours.
4. Wearing an excessive amount of clothing while training to produce great sweating.
5. Taking Turkish baths.
6. Wearing an excessive amount of clothing and then exercising violently for an hour prior to weighing in. This exercise often consists of running from three to ten miles, or "shooting baskets" for a long period and then running a long distance, sometimes in an overheated room so as to produce excessive sweating.
7. Going entirely without food or water all of one day up to the time of weighing in—the late afternoon or evening—and, as soon as weighed, eating or drinking some light food. Sometimes, however, this was not light food, but was made up of some such substances as a "Wienerwurst" sandwich, a ham bun, or the like,

swallowed hastily and washed down with some water. Competition followed immediately.

To understand this problem further it must be borne in mind that in nearly all cases in high school we are dealing with boys between the ages of twelve and eighteen years. For this one reason the problem is quite different from that of the man who trains down for coxswain, riding, boxing, or wrestling. These persons are, as a rule, mature and have their development, with the possible exception of the jockey. Furthermore, they are their own masters and therefore responsible for their own acts. In the case of the boy, if he is injured by the process of reduction in weight, the responsibility does not rest upon the boy, but upon the person in charge of the athletic sports.

Another very important point to be considered is the fact that in nearly all cases of reduction we deal, not with the fat boy, who as a rule might be much benefited by some reduction, but practically always with the expert athlete who has grown just a little too heavy for the respective weight. He is not a fat boy at all. In fact he is usually a rangy fellow who is just beginning to fill out. He is usually the very fellow who should be taking on more weight. His bony structure is expanding and his muscles are developing very fast. It seems that in interfering with the growth and development of such a boy we are interfering with nature's process.

Occasionally the reducing is done without the knowledge or consent of the coach or trainer. Sometimes the desire of a young boy to make a certain team is so great that he will secretly reduce. This happens only when the man in charge is weak and permits his charges to injure themselves by such practices. Of course, such instances are rare.

Suppose a boy does train down with the knowledge and consent of his coach. Suppose his coach even advises him how to go about it—how far he may go, what to wear, what to eat, when to eat, how much to train, etc. Do you suppose there are in Chicago, outside of the medical profession, a dozen men, who are working with boys as their physical advisers or as their coaches, who can scientifically advise a boy on such a matter? Half of our physicians would not undertake the job. They do not believe in the

practice. If our physicians feel that this is such a difficult matter, how can inexperienced, unscientific men be expected to cope with the situation in such a way as to conserve the health and strength of the boy? They cannot.

We must also consider the nature of the contests in which these boys indulge after they have trained down. All of us will admit that it may be an easy and perhaps harmless thing for a man to train down for the position of coxswain of the crew and then simply to guide the shell and urge on the fellows who are really doing the work. Likewise, it is easy for the jockey whose race covers only a few minutes of time at the most. But the boys who train down are in most cases competing in three of the hardest sports, soccer football, football, and basket-ball. The only other sport to compare with these in point of strenuousness is long-distance running, for which we do not find boys training down.

Of the three sports mentioned, we ought to lay special stress upon basket-ball. This is the one sport of the three in which the boys are on the jump from the beginning of the game till the end. There is seldom any let-up for forty minutes, save one brief intermission. Football is a strenuous game, but fully two-thirds of the time of the game is spent in lining up, in shifting, in penalizing, and in other delays. It is not a game which "winds" the boys. Soccer is more violent than football for some of the players. The linemen and the halves are very busy individuals, yet even they find breathing spells when the ball is in other parts of the field. Here we have three sports for which boys train down in weight, and probably under our present organizations nine-tenths of the training down is for the most strenuous sport on our athletic calendar—basket-ball.

From the physical standpoint alone then we have these conditions:

1. Training down in weight by boys in the ages from twelve to eighteen—not men.
2. Training down and keeping down for a period of several weeks, or even months.
3. Training down by the very boys who should by a normal process be gaining in weight.

4. Training down for a long period of time, but especially just before each contest, for the most strenuous sport in the athletic calendar, and participation in this sport usually when tired by the exertion of training down, or by the practice of undereating and underdrinking.

5. Training down without the aid or advice of men who are competent to advise scientifically.

Dr. A. J. Carlson, head of the Department of Physiology in the University of Chicago, writes as follows concerning the facts of training down in weight:

1. Going without food or water for from six to ten hours prior to competition would probably not injure any boy who is otherwise physically fit to participate in strenuous games; but it might lower the vitality of certain types of boys, very lean lads, "going on their nerves," and "playing their heart out" in a game.

2. Eating a slice of toast, a slice of bread and butter, or a sandwich (without meat or cheese) with just enough water or milk to moisten it, just before competition will prove more beneficial (available energy) than injurious (colic or indigestion). A few lumps of sugar or a cake of chocolate would be even more beneficial for the boy who has "trained down." The lad who has plenty of reserve energy does not need anything of this sort.

3. Reducing the quantity of solid and liquid food for a period of several weeks, at the same time doing hard training, is dangerous, except for a fat boy. And even the fat boy should not reduce the water or liquid intake for any considerable time. For the lean boy, this method of reducing weight followed by a strenuous game may reduce vitality to an extent that is even permanently injurious.

4. Reducing weight by working hard with an excess of clothing is essentially reduction by sweating. This should not be done on the day of the game, as it means hard work for the heart, and the boy entering the strenuous game with a heart already partly fatigued is *more liable to heart and kidney injury from the hard work of the game itself*.

The various methods of reducing weight have no *direct* injurious action on the alimentary tract, or on the circulation, except to the extent that they reduce vitality in the *lean* and *highstrung* lad, and they indirectly impair the entire organism.

5. Speaking from my knowledge of physiology I would say, regarding boys twelve to sixteen years of age:

a) The boy who is undernourished or under weight (according to age and weight) should not be allowed to train down at all.

b) The fat boy, provided his fat is due to overfeeding and underexercising and not to disease, may reduce considerably by dieting and exercise without injury if done gradually.

c) The lean but well-nourished boy may train down one or two pounds in a scientific way with impunity, but should not be permitted to reduce five or seven pounds.

The results of this practice may be indicated first by citing the outcome of some specific cases.

Case I: X was fifteen years old. He had just finished a rather hard and long season of football during which he played in the position of quarter-back. During the football season he never went below 134 pounds. When X joined the basket-ball squad immediately after the close of the football season he was 4 pounds too heavy for the lightweight team which had 130 pounds for its upper weight limit. He proceeded to reduce by undereating and underdrinking and wearing excessive clothing. On the day of the first game which was to be played at 4:00 P.M., he weighed in at 12:30 P.M. at 131½ pounds. He then went to the gymnasium wearing enough clothing for an Eskimo, worked hard for an hour or more and then went out on the running track and ran about two miles. Upon his return he weighed 129½ pounds. He then went to class and returned at 3:30 P.M., weighed in before the visiting coach, ate an egg sandwich, drank a little water, rested a few minutes and then played violently in the game. For supper that evening he simply gorged himself. This process was kept up weekly for some time and then X found it more and more difficult to reduce, so he began systematically undereating and underdrinking, especially the evening before the day of a game, when he must weigh in. About the seventh week of the season he became so stale and lifeless that others supplanted him on the team, and finally he dropped out because of a "crop of boils." It was at least six weeks before he regained his normal health and spirits. And during this entire period his school work suffered materially.

Case II: Y was seventeen years old, weighed 135 pounds, and wanted to make the 130-pound basket-ball team. He reduced for ten days in the same manner as did X, made the team and the required weight, and played in the games. After a few weeks it became more and more difficult for him to stay down in weight, so he ate and drank less and worked harder and harder. After each contest he was so hungry that he simply gorged himself, and

severe indigestion always followed for a day or more. This acute indigestion finally became chronic to such an extent that the boy lost more weight than he wanted to. He then became weak and finally dropped out of the game and was a long time recovering.

Case III: Z was fifteen years old, weighed 148 pounds, and wanted to play on a 140-pound football team, after failing to make the heavy-weight team. He was not a fat boy. He trained hard and faithfully for four weeks and got down just once to the 140-pound limit. Then he went up in weight again and thereafter he couldn't get down. In trying, however, he wore himself out, impaired his digestive system for awhile, and finally gave up and went back to the heavy-weight squad as soon as he was strong enough, which was the very last of the season.

These are the only three cases with which I have actually become familiar, the only cases that I have studied and watched from beginning to end. While these were, as compared with others, very mild, they were enough to cause us to make the unalterable rule that boys in our school shall not train down in weight for athletic events unless they are fat boys who naturally reduce when doing strenuous work.

It should be noted that recently in Chicago two well-known amateur wrestlers died of pneumonia within two and one-half days after the contraction of the disease. Both of these wrestlers were young men who found themselves many pounds too heavy for a specific weight and who trained down to meet the occasion. It seems that both so reduced their resistance to disease that they were helpless when pneumonia attacked them.

A man who has excellent control of himself might deny himself food and drink in a systematic way over a long period and perhaps be none the worse for it. A boy, however, unless he be exceptional, cannot have perfect control of himself. He will deny himself spasmodically and gorge himself as often. This alternate shortage and superabundance of food constitutes irregularity. Even grown people cannot live an irregular life. Granting the statement of dietitians that all of us as a rule eat too much, that we might reduce the amount of food by a large percentage and still be well and strong, this must be done in a perfectly systematic way and

must not go beyond a certain limit. And who is to decide his limit? Certainly the boy is not able to judge when he has reached it. Certainly the ordinary athletic coach or physical director is unable to make such decision. Is there any physical director who thinks himself capable of deciding this fine point and who would be willing to take such a responsibility upon himself? A person who so handles a young boy as to injure him either temporarily or permanently is perfectly liable in a legal way and might be prosecuted to the full extent of the law. Isn't it our duty to the young to take no chances with them? Many of our boys overdo in athletics without the connivance of those over them. It has always been my aim in handling boys to try to increase their weight during any athletic season. The ordinary boy in three months' time should always gain a few pounds. If that is the normal thing why should we fight nature in the matter? The trained-down boy has restless sleep, is tired in the morning, and soon goes about his sports in much the same spirit as the ordinary man goes about his work. The joy, the pleasure, the recreation are all removed and only the husk is left. Following this fatigue of several days or weeks, we may expect a whole train of abnormal conditions—indigestion, loss of appetite, restless sleep, dreams, boils, infections, and colds. Soon his game "falls off" and then we heartlessly cast him aside. And how many of these conditions remain with the boy more or less permanently is beyond our judgment.

The word championship has more to do with harm for the young boy than with good. It is for a championship that the boy trains down. Too much emphasis is laid upon the winning, the prize, the honor, and glory, and not enough consideration given to the fun of the thing. The pleasure of competition is lost sight of. Another important item connected with the championship is the coach. This man usually feels that it is "up to him" to make some sort of a showing. His bread and butter seem at times to depend upon it. Certainly his advancement in the athletic world seems to him to depend largely upon his success in winning games with his teams. The coach who feels this way about his job to such an extent that he is willing to take a chance with the health and

welfare of young boys ought to be discharged. Someone might say that this training down is no worse than the game of football in which the coach places the boy and permits him to accept risks, even of his life. The cases are not parallel at all. Some games have an element of danger in them and it is a good thing for the boys that they have. Thus they develop courage and fighting instinct. Some chances must be taken in this world. The parent who will not permit his son to take a physical chance will certainly have a mollicoddle on his hands sooner or later.

There is a great modern movement looking toward less competition between teams representing various institutions and more competition within each institution. Home competition has more real fun in it than any big championship match or game that was ever held. In our home matches the boys play for the pure fun of the game. In the larger affairs the fun is largely lost sight of and work and drudgery is added. The fun seems to be in beating the other fellow or the other team, or in gaining the prizes. Before we are again on a sane plane in an athletic way we must get back to the play idea. We have got away from the spirit of play. We are away from it when we play for money, when we gamble, when we play purely or in large part for the valuable prize, when we place undue emphasis upon winning, when we train down in weight and endanger the health of our boys.

The remedy will not be easy, will not come quickly, will not do for all time, but must be constantly applied.

1. We must obliterate the thing which makes the boy want to train down, i.e., the abnormal desire to win. We must not place so much emphasis upon championships. We must encourage the ideal of play and recreation and preach their educational values.

2. We must rule against the practice of training down and put the ruling thoroughly in force and back it up by heavy penalties.

3. We must conduct an educational campaign against the practice—a campaign which will teach parents, educators, physical-training teachers, and boys the harm of training down in weight and offer encouragement to playing in the groups as nature indicates.

4. It seems possible that some other measurement than weight may be the determining factor in grouping boys for competition. This is particularly true of basket-ball, in which game it would seem that height is a more important factor than weight. If height is the more important factor, why not classify the boys by height? If this may be done for basket-ball we will eliminate the greater part of the danger, as more boys train down for basket-ball than for any other sport, and basket-ball, as previously stated, is the most dangerous of all sports for boys.

EDUCATIONAL NEWS AND EDITORIAL COMMENT

To the Editor of the School Review:

SIR: May I ask for space in the magazine for an expression of official and personal appreciation of the efforts of the many people whose co-operation made possible the successful Conference between the University and Allied Secondary Schools, the sessions of which Conference were held on April 12 and 13, 1917. The assembly of approximately fifteen hundred officers and pupils of high schools in sessions covering the major part of two days is in itself a matter of considerable significance, and the attainment of the aims of such an assembly, professional, academic, and social, obviously involves a great deal of self-sacrifice and the expenditure of thought, energy, and time.

No doubt it is to be assumed that the purposes of this annual Conference are as important in the eyes of high-school officials as of those who estimate them from the point of view of the University itself. Those of us, however, who have regarded these Conferences from the latter point of view and have for many years held the faith that these assemblies find their justification in bringing the University on the one hand and the secondary schools on the other to a plane of common understanding in the working out of problems of mutual importance, and that in this way best we may discover what is sound in educational procedure. The Conference just closed is felt to have justified that faith. No one who was present in the general sessions of the Conference of April can, I believe, entertain any doubt that the result of the discussions is a far clearer common understanding of the problems involved and of how the solution of these problems is related to the present traditional organization of elementary and secondary education.

To the committees who organized the departmental sessions, to those who gave the main addresses, and to all who in any way participated in the Conference, I would like in this way to express appreciation.

Very truly yours,

NATHANIEL BUTLER

A SOMEWHAT BRIGHTER DAY FOR CHICAGO SCHOOLS

By a house vote of 110 to 11 and a senate vote of 31 to 1 the Baldwin-Otis bill was sent on April 6 to the Governor of Illinois for signature. To those who hoped that Chicago might have a thoroughly good school house-cleaning, the compromise measure known as the Baldwin-Otis bill is somewhat of a disappointment. At any rate the bill makes possible, we are sorry to say not inevitable, a sane and sensible school régime to supplant the petty politics, confusion, and general inefficiency which have so long prevailed in Chicago. Light may be ahead.

Enter a school board of eleven members, not the board of seven elected at large, which was recommended by the best educational experts of the day. The board of eleven takes the place of the present board of 21, but like the present board is appointed by the mayor and approved by the council. Here appears the usual tendency of lawmakers to give the public just a taste of what they want. The strong hold of politics is hard to break. Here and there a finger may be loosened.

Enter also a triumvirate of three school officers, elected for four years by the school board: the superintendent, the business manager, and the school attorney, equal in rank and with differing duties. If they can pull together, well and good. The *School Review* regrets that the lawmakers were unwilling to give Chicago a superintendent of schools who, as chief officer, as managing official, is supreme in his field, responsible alone to an elective board. But even the Otis bill is a forward step. At least we may expect that even cautious men might become more courageous. To be sure, the independence of any officer can be checked by a two-thirds vote of the school board.

The city council is shorn of all power over school officers except the approval of mayor's appointees and concurrence in the purchase and sale of school lands. Herein, at least, we may rejoice, remembering, however, that an elective board would have been entirely free from the council.

Elaborate provisions guarantee a definite trial procedure for teachers charged with incompetency and insure a tenure of office for competency. This provision, too, is somewhat of a makeshift. But on the whole the smaller board, the relatively independent officials, the diminished influence of the council, and the reasonable tenure of office, although not constituting an ideal program, do constitute progress. Partly, at least, Chicago schools are released from the strain of factional politics. To a certain extent men and women engaged as educators and as teachers may now go ahead with confidence to their tasks. Yes, the teachers might now be independent enough to get rid of their walking delegates.

INSTRUCTION PROVIDED BY THE MICHIGAN SCHOOLMASTERS' CLUB

During the last week in March the Michigan Schoolmasters' Club met in its fifty-second annual convention at Ann Arbor. Fifty-two years is a venerable age, but that it need not be a senile age is evidenced by the vitality with which the Schoolmasters' Club lays hold of its tasks. From the parent association several more or less closely affiliated branches have sprung: among them are the Michigan Superintendents' Association, the Short-term Institute for Superintendents, The Institute for Classical Teachers, The Classical Conference, the Michigan Academy of Science, the High-School Principals' Association, and others. Truly this is an imposing array, perhaps altogether too imposing. To an outsider is inevitably given an impression of inco-ordination, over-organization, and confusion. Frequently the same comment has been made concerning the conglomeration of meetings and societies centering around the Department of Superintendence. Regrettable in the extreme is the fact that the science which we call education so often seems to be entirely unscientific in the classification of its interests and in the organization of its efforts.

The secretary of the Club uses one very suggestive phrase in his communication addressed to the *School Review*. He says, "To provide *instruction* for the twelve hundred school men in attendance many speakers of national reputation were secured." The significance of this remark lies in the word "instruction." In this idea is involved a much-needed change, a movement away from the old-time "inspirational" meetings, now happily diminishing in number. Not, of course, that school men do not need inspiration, but the type of inspiration needed by the twelve hundred men gathered in Ann Arbor, or elsewhere, is inspiration which comes from better and broader information.

From this standpoint the most interesting sessions of the week were those of the Short-term State Institute. Three years ago the first conference of this character was undertaken at Michigan with E. L. Thorndike, Teachers College, Columbia University, and L. D. Coffman, School of Education, University of Minnesota, as instructors. The meetings were continued the following year, and C. H. Judd, director of the School of Education, University of Chicago, and G. D. Strayer, of Teachers College, Columbia University, were engaged as lecturers. This year the special lecturers were Leonard P. Ayres, of the Russell Sage Foundation, and Professor Paul Hanus, Harvard University.

In the course of his lecture Dr. Ayres discussed measurement of reading ability, measurement of achievement in handwriting, carrying the community in school surveying; the actuarial basis for industrial

education; our new knowledge about school ventilation; and making education definite. The topics of Professor Hanus were: the superintendent's administrative policy; the superintendent's supervising policy; the aims, scope, and methods of the superintendent's report; industrial education prior to and accompanying employment; and the superintendent's educational policy.

Another unique feature was the "Summarization Meeting" held at the close of the week, in which, by five-minute talks, representatives from the several sectional conferences sought to present the gist of the conference discussions—to show what trends the thought in specialized fields is taking, what practical provision is being made for adapting school administration to the advanced theories, and what correlation might wisely be sought and expected from teachers in other departments of the school work. Thus the keynote of the entire convention, instruction, was again struck in the final meeting.

TWO VIEWS OF VOCATIONAL EDUCATION

Under the suggestive title "Learning to Earn," John Dewey discussed vocational education at the recent meeting of the Public Education Association in Baltimore. He propounded squarely the educational issue: Shall the purpose of vocational training be the improvement of economic life through the preparation of persons well equipped to better their own conditions; or shall the purpose be the preparation of a better grade of labor to help the United States in the competitive struggle for world-commerce? Dr. Dewey charges that this second conception is satisfied with the happiness of mere contentment in increased skill and possesses no by-product of larger intelligence or power on the part of the worker.

Dewey points out the educational disadvantages involved in the pure trade conception of vocational education: first, the conception puts a premium on a divided or dual system of administration; secondly, instead of developing human beings equipped to reconstruct present-day industry, the second conception limits training to mere vocational skill; thirdly, on this narrow plan the curriculum will neglect history and civics and social studies in general which make future workers aware of their rightful claims as citizens in a democracy; fourthly, this conception will emphasize all that is most routine and automatic in our present system, looking for immediate results rather than understanding; and finally, it will measure its progress by the number of children taking out working papers for whom it succeeds in finding places.

In quite the opposite way will proceed "the idea of industrial education which aims at preparing every individual to render service of a useful sort to the community, while at the same time it equips him to secure by his own initiative whatever place his natural capacities fit him for." Working through a unified, not a divided, school system, vocational training of this sort will recognize frankly that traditional elementary education is largely vocational, but that the vocations which it has in mind are at present too largely clerical. This second idea will make much of developing motor skill and manual skill, but not of a routine or automatic type. It will aim at the inventive and creative power of mind. Its purpose will be, not the production of skilled workers for hire in specific trades, but the production of workers who have industrial intelligence.

Thus, says Dewey, is the issue squarely drawn between the industrial and the educational ideals.

THE SMITH-HUGHES VOCATIONAL EDUCATION BILL

On February 23 Congress passed the Smith-Hughes bill. The administrative agency set up is a series of boards, at the head of which is a federal board consisting of the Secretaries of Agriculture, of Commerce, of Labor, the Commissioner of Education, and three laymen, representatives of manufacturing, of agricultural, and of labor interests. This federal board is instructed to co-operate with state boards which may be set up under any system the states see fit to employ. Here lies the joker in the judgment of men who hold to Dewey's ideals discussed above. The entire emphasis of the bill seems to point to a dual state system of schools. These state boards in turn will co-operate with community boards of control, namely, any local body having charge of public education. Thus apparently in administrative features the bill provides thoroughly democratic control. But it is to be regretted that the federal government is seemingly to throw its tremendous influence in the direction of pure industrial skill as an independent aim in education.

In its subsidy features the bill is very liberal. It provides that the federal government will appropriate dollar for dollar with the states in promoting industrial training. The federal moneys must be distributed as follows: at least $33\frac{1}{3}$ per cent must be applied to part-time schools, 20 per cent may be applied for salaries of teachers, and a small percentage for the training of teachers, supervisors, and directors of vocational subjects. Obviously one or more of these interests will be more liberally supplied than the minimum here indicated.

The important part of the bill as touching the issue so clearly stated by Dewey lies in sections 10 and 11. The funds are disbursed only to schools lower than college grade which have certain minimum requirements in equipment and teaching staff. Moreover, the schools to be benefited are only those which are *designed to prepare* persons over fourteen years of age *for useful and profitable employment* in agriculture, trades, commerce, and home economics. There can be no doubt whatsoever that the Smith-Hughes bill is designed primarily to promote unadulterated trade education of the second type as characterized by Dewey.

In all fairness it needs to be said that one insignificant passage in section II contains a comforting provision. The passage runs to this effect: "Such subjects in a part-time school or class may mean any subject given to enlarge the civic or vocational intelligence of such workers over 14 and less than 18 years of age." Only in evening schools for adults is the training limited strictly to "that which is supplemental to the daily employment."

All who stand for educational ideals primarily and industrial ideals distinctly subordinate will regard this provision for civic and vocational intelligence as the saving grace. It is too bad that this passage is awarded an inconspicuous place. It would indeed be a sorry day for democracy if any large share of our educational endeavor aimed only to turn out workers. We want workers who have personal, as well as vocational, vision, both supplemented by civic intelligence. Frequently one hears the charge, we hope unjustified, of dollar diplomacy; let there never be raised the charge of dollar education.

THE IOWA TEACHERS' RETIREMENT FUND

A committee of the Iowa State Teachers' Association has reported the following bill and recommended that it be urged before the legislature:

A BILL for an act authorizing the giving of annuities to retired public-school teachers, fixing the term of service and the manner of retirement, and authorizing a tax levy to provide the necessary funds.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF IOWA:

Section 1. Any teacher who has completed twenty-five or more years of service, and who complies with all the provisions of this act, may retire upon a life annuity of twelve dollars for each and every year of such service.

Sec. 2. Any teacher who has completed twelve or more years of service in this state may retire upon a life annuity of twelve dollars for each and every

year of such service for such mental or physical disability as disqualifies him from continuing successfully in the work of teaching.

Sec. 3. Every teacher upon retirement, either upon completion of term of service or for disability, shall pay or cause to be paid into the permanent school fund of the state the sum of three hundred dollars, and this amount, together with gifts, grants and bequests, shall constitute a separate fund to be known as The Teachers' Annuity Fund, and shall be invested in the same manner as other school funds. The interest earnings on The Teachers' Annuity Fund shall be divided equally among the annuitants in annual or quarterly payments as the state superintendent of public instruction may direct and shall be in addition to the annuity paid by the state; provided, however, that the annual interest distribution to annuitants shall not exceed the sum of three hundred dollars to each annuitant. The excess interest earnings shall be applied upon the annuity paid by the state.

The three hundred dollar payment by the teacher into The Teachers' Annuity Fund may be in a lump sum or it may be deducted from the annuity.

Sec. 10. Retirements may be made any time after the passage of this act, but no retirement shall take effect before September 1, 1918.

Sec. 11. Gifts, grants and bequests may be made to The Teachers' Annuity Fund, and the form of such gift, grant or bequest shall be: To the Permanent School Fund of the State of Iowa for the Benefit of The Teachers' Annuity Fund.

Sec. 12. The annuity granted herein shall not be assigned, and shall be exempt from garnishment, attachment or execution.

This bill ought to be passed by Iowa and copied by other states. Both the insurance feature and the annuity feature are sound in principle. A state ought to provide for aged or incapacitated employees after a reasonable length of service in exactly the same way that a railroad company or a manufacturing concern ought to make such provisions. Retirement after twelve years of service is distinctly protected against abuses which might become serious, by the provision specifying mental or physical disability acquired during a reasonable length of service. Thoroughly incompetent teachers and teachers who enter the occupation as a makeshift are likely to be eliminated before they have taught twelve years. The enactment of such a bill would protect the schools against incompetents and would go far toward relieving hard-working teachers from the fear of unprovided old age. The annuity principle, moreover, ought to satisfy their self-respect. This feature is distinctly better than annual deductions from a teacher's salary during his term of service.

SOCIETY OF COLLEGE TEACHERS OF EDUCATION, FEBRUARY 26 AND 27,
1917, KANSAS CITY, MISSOURI.

The Society of College Teachers of Education met in the St. Francis Room of the Baltimore Hotel on Monday and Tuesday according to printed program. All members appearing on the program were present with the exception of William Russell, whose discussion was omitted. The attendance during Monday's session averaged around three hundred. The attendance for committee reports and business Tuesday forenoon averaged about one hundred and fifty.

BUSINESS SESSION

The co-operation of Mr. George Melcher in making arrangements for the meeting of the Society of College Teachers of Education was brought to the attention of the Society by the secretary. On motion, the thanks of the Society were extended to Mr. Melcher.

The report by Chairman Thompson on "Organization of Placing Committees" was approved in general, and the committee was authorized to select a co-operating member in each state with whom to work to complete the organization and to secure uniform blanks and procedure throughout the country.

The report by Chairman Rall on "Reorganization" was approved in general and referred to the Society for final vote at its meeting next year, in accordance with the constitution. The desire of members further to consider Mr. Rall's report led to a motion that the different items be now considered and approved. Accordingly the preamble, the article making provision for membership for efficiency men, the item permitting members to continue after they enter other lines of work, and the fixing of the executive committee membership at eight were all read and approved by the Society, with the understanding that this approval is not binding upon the Society.

The question of admitting teachers in education from four-year normal schools to membership was referred to a special committee with instructions to report next year. Discussion from the floor indicated a sentiment in favor of admitting to membership the strong men in education from normal-school faculties.

The Auditing Committee, through Carter Alexander, chairman, and one other member reported to the Society that the accounts were found correct, and accordingly approved.

The report of the secretary-treasurer shows receipts and expenditures as follows:

RECEIPTS

Balance forwarded from 1916.....	\$186.67	
Membership dues paid at Detroit meeting and up to April 20 following.....	39.00	
Membership dues received up to December 23.....	61.00	
Membership dues received up to February 24.....	153.00	
Total.....	\$439.67	\$439.67

EXPENDITURES

Postals about Kansas City hotel arrangement May 1, 1916; paid by check.....	2.50	
Envelopes from Carpenter Paper Co. (500) to send out notices of dues, December 8.....	1.40	
Stamps used in collecting dues.....	8.00	
February 6, 400 sixteen-page folders, program, and membership list; paid by check.....	20.50	
February 6, 500 envelopes, 7x10½, Carpenter Paper Co... ..	1.58	
February 19, 600 one-cent stamps, 470 two-cent stamps, used in sending out separates and programs.....	15.40	
For proofreading and stenographic work.....	10.00	
The Torch Press, printing of 500 separates.....	107.50	
Total.....	\$166.88	\$166.88

Balance on hand..... \$272.79

The Nominating Committee reported the following officers for the coming year: L. D. Coffman, president; G. M. Wilson, secretary-treasurer; F. P. Graves, member of the Executive Committee to replace W. A. Jessup retiring. The report was accepted, and the election was declared unanimous.

Edward F. Buchner brought to the attention of the Society the advantages of affiliating with Section L of the American Association for the Advancement of Science. After discussion the following resolution was presented and passed unanimously:

Resolved, That the Society of College Teachers of Education will welcome the opportunity of enjoying the benefits of affiliation with the American Association for the Advancement of Science, provided this privilege could be extended to all persons who are members of the Society during the year 1917.

The excellent program, the large attendance, the luncheon features, gave to the Society's meetings an appearance of solidarity and power which was the subject of most favorable comment by the older members who can remember the humble beginnings of the Society. The change has been rapid. Departments of education and the professional training of teachers are now everywhere accepted and approved.

(Signed) G. M. WILSON, Secretary

CURRENT EDUCATIONAL WRITINGS

I. RECENT PUBLICATIONS IN THE FIELD OF SECONDARY-SCHOOL ADMINISTRATION

FRANKLIN W. JOHNSON

Principal of the University of Chicago High School

At any period in the history of education those who have been responsible for the work of the schools, teachers, and administrators alike, have found justification for current practices in sanctions which have become outgrown. In methods and subject-matter of instruction, as well as in forms of school organization, custom has been largely the determining factor. The aristocratic tendencies in European secondary education controlled the early secondary schools in this country and gradually became dominant in the academy and later in the high school. The rapid expansion of our population and the development of new social and industrial classes with new trades and professions have created for the schools the imperative need for radical readjustments to meet the changed social conditions. That we are undertaking to meet the situation is seen in new types of organization like the junior high school and the junior college, in industrial education either in separate schools or as a part of the work of the cosmopolitan high school, in the widespread interest in more efficient methods of instruction, particularly in what is called supervised study, and in the introduction of new material of instruction or the radical reorganization of the older material in such new forms as general science, community civics, and combined or correlated mathematics.

In the present unsettled condition there is extreme danger that those who are in charge of the schools will not have clear ideas as to what it is all about and that the immediate result will be a state of confusion which will give considerable comfort to the conservatives, who may be counted on to make the most of their opportunities. What we need at this juncture is a clear statement of the aims that underlie the changes that are taking place. Dr. Snedden's *Problems of Secondary Education*¹ is a forceful and comprehensive statement of these aims. Not the least interesting part of this book is the introduction by Mr. Cubberley, editor of the "Riverside Textbooks in Education," a series of which this is the last book published.

For the sake of securing a more direct and more personal approach to the problems under consideration the author has arranged his material in the form

¹ David Snedden, *Problems of Secondary Education*. (Riverside Textbooks in Education.) Boston: Houghton Mifflin Co. Pp. 333. \$1.50.

of letters addressed to the various types of teachers or administrators directly or indirectly associated with the work of secondary education. These letters are addressed to a university president, a college professor of education, and the chairman of a committee on college admissions, to a superintendent of schools, an assistant superintendent in charge of vocational education, and to the principal of each of the following types of schools: a general high school, an industrial school, an agricultural school, a commercial high school; to a conference of secondary-school teachers; to a teacher of each of the following subjects—Latin, modern languages, English, history, social science, physics and chemistry, biology, general science, music and art, home economics, physical training; to a committee appointed to investigate and report on current criticisms of high-school mathematics; and to a superintendent as chairman of a committee to consider the matter of developing the junior high school.

In these twenty-five letters the author scrutinizes the current methods and material employed in our schools against the background of their social usefulness for men and women of the present time. Social usefulness as considered by the author represents no narrow utilitarian aim. It includes, not merely the "ability to do, to execute, to construct," but also the "ability to discriminate, to choose, to appreciate, and, in the broad sense, to utilize."

In general, the author does not undertake to state dogmatically the methods by which the aims are to be secured in the wide field which his letters cover; instead he contents himself with raising vigorous and stimulating questions, the solution of which he leaves to those who are assumed to be specialists in their various fields, pointing out the direction in which future progress must probably be made. And yet there are numerous definite suggestions for improvement. For example, in his letter to a teacher of English, after pointing out the fact that the twelve to fifteen million dollars spent annually in teaching English in our high schools places upon English teachers the necessity of demonstrating "to a greater extent than seems now practicable, the effectiveness of the means and methods which they employ," he suggests that literature and expression should be taught separately and by different teachers. In addition to the teaching of oral and written expression, the latter of which has received the lion's share of attention, he suggests that training be given in the technique of effectively listening to, or hearing, English as spoken or read, in silent reading, and in oral reading.

The letter to a teacher of social science is peculiarly interesting and stimulating. He suggests for the second high-school year a course in social science, including history, divided under these heads: "(a) project problems, in which the learner will be expected to have experience in active participation, which he can describe and interpret; (b) observation problems, where the learner can have facilities for concrete observation, and where, as a result of such observation coupled with reading, he will describe and interpret for the class; and (c) reading problems and studies, in which the learner will have to obtain most of his information from reading and analogous sources, interpret-

ing this as best he can for the class." Definite lists of type problems falling under each head are given which leave no doubt in the reader's mind as to the superiority of such a course, from the point of view of the interest and social usefulness to the pupil, over the formal courses in history which still prevail in our schools.

Physical training in high school has included little except training teams consisting of a few already well-developed boys for athletic contests with similar teams from other schools. The letter to a teacher of physical education proposes "instruction in hygiene and systematic oversight of physical development and training as a condition of living and working under modern conditions." If the school is consistent with its aim to make the pupils socially useful and efficient, our conception of physical training must be greatly expanded. This letter contains an outline of fifteen recommendations made by the author to the Massachusetts Commission on Military Training and Reserve which are of timely interest in connection with the present discussion of military training in the high school.

Mr. Snedden's book is a most stimulating contribution to educational literature. It is to be hoped that many of his suggestions will be put to the test of experience by teachers and administrative officers in our schools.

Three persons have to do with the administration of a public school—the classroom teacher, the principal, and the superintendent—each of whom contributes his share to the common enterprise. Under the head of classroom management there is an abundant literature dealing with the work of the classroom teacher. Ellwood P. Cubberley's *Public School Administration*¹ deals with the work of the superintendent. A later volume of the series on the *Organization and Administration of the School* will deal with the functions of the principal. It is proposed to add still another volume on the *Supervision of Instruction*. If the present volume furnishes basis for judgment these books will furnish quite the most complete and adequate treatment of the problems of school administration available for school officers.

The book treats the subject under three general heads: outlines of state educational organization; the city school district and its problems; and city administrative experience applied. Under the first of these heads the author discusses the evolution of the various existing forms of organization in six chapters: origin and development of schools; state authorization and control; state organization; county organization; town, township, and district organization; the city school district.

Part II, dealing with the practical problems of city school administration, is likely to prove most interesting and valuable to the superintendent. In this the author treats in a concrete and vigorous manner the functions of the

¹ Ellwood P. Cubberley, *Public School Administration*. (Riverside Textbooks on Education.) Boston: Houghton Mifflin Co. Pp. 479. \$1.75.

superintendent in relation to the various parts of the school organization: the school board; the teaching corps; the departments in charge of health, attendance, and business.

To the young man who aspires to the superintendency the two chapters on the superintendent and his work will be found most interesting, and, if the suggestions of the author are followed, will prove a valuable aid to success. After discussing the training necessary for the position, he gives the following as among the personal qualities necessary for a superintendent:

While good training and experience are of fundamental importance to the man who wishes to prepare for educational leadership, certain personal qualities must be added to both if any large success is to be achieved. The man who would be a superintendent of schools—the educational leader of a city—must be clean, both in person and mind; he must be temperate, both in speech and act; he must be honest and square, and able to look men straight in the eye; and he must be possessed of a high sense of personal honor. He needs a good time-sense to enable him to save time and to transact business with dispatch, and a good sense of proportion to enable him to see things in their proper place and relationship. He must have the manners and courtesy of a gentleman, without being flabby or weak. He must not be affected by a desire to stand in the community limelight, or to talk unnecessarily about his own accomplishments. He must avoid oracularism, the solemnity and dignity of an owl, and the not uncommon tendency to lay down the law. A good sense of humor will be found a means of saving grace here, and will many times keep him from taking himself too seriously.

The work of the superintendent is discussed under three heads: as an organizer, as an executive, and as a supervisor; and the danger of overemphasizing any one of these to the neglect of the others is pointed out. The importance of the use of tests of the results of school work is emphasized in the training of the modern superintendent.

The chapter on "Functions of School Boards" might be commended to the careful reading of members of legislatures and city governments who cannot see to what extent the schools are rendered inefficient by the meddling control of large school boards. He says:

A city school board composed of a machinist, a retired gentleman, a grocer, a shoe clerk, a real estate agent, a druggist, a lumber-yard foreman, a hotel-keeper, an old and busy lawyer, a bookkeeper, a young lawyer without much business, and a banker might be considered to be a board of the better type. . . . If, in place of five of the better members of the board described above, we substitute a teamster, a blacksmith, a saloon-keeper, a young politician with little or no visible means of support, and a crank with an educational hobby, as often happens as a result of city elections or appointments by mayors, we get a combination which is likely to do much to destroy the efficiency of a school system by turning it into a city patronage department and by attempting to perform almost every technical and professional function which a school board should leave to experts to perform.

Having considered in detail the principles underlying the organization and administration of city school systems, in Part III the author applies the results

of the best administrative experience to the problems involved in the organization and administration of public education in the county and the state. To make adequate provision for rural and village education he recommends the "subordination of the district system and probably, in part, the township system also; the erection of the county as the unit of school organization and administration, cities under city superintendents of schools being exempted from the county organization; and the complete elimination of party politics from the schools."

In his introduction the author expressed his purpose "to avoid the production of a book of mere facts and figures" and also to avoid the defects of most writers on administration who present such a nice balancing of arguments as to make their books practically colorless. In both respects he has succeeded notably. Facts and figures there are in abundance, but they are always used to support the conclusions which are stated with such definiteness as to leave no one in doubt that they represent the author's genuine convictions. In addition to the interest in the subject-matter itself, the clear and often graceful style in which it is expressed adds greatly to the pleasure of the reader.

It is no longer necessary to convince school men that there is much waste in our secondary education. We are familiar with the fact that at the age at which our high-school graduates enter college the German boy has completed the equivalent of the two years of our junior college work. The six-six plan attempts to remedy this loss on the side of organization. Supervised study attempts to seek a remedy on the side of instruction. School administrators who are interested in securing economy—and who are not?—will profit by reading Mr. Russell's *Economy in Secondary Education*.¹ Basing his discussion on analysis of the German and French systems, the author proposes as means for securing economy a longer school day and year, a clearer articulation of the elementary and high schools, the adoption of some phase of the French cycle system by which those who drop out of school may have introduction to the essential elements, the elimination of useless subject-matter and improved methods of instruction.

One of the essential characteristics of a democratic form of society is the opportunity and incentive which it affords for the fullest development of the individual in the direction of his natural interests and abilities. Our schools, one of whose important aims we have claimed to be the preparation for effective citizenship, have been peculiarly inconsistent in that, as regards both organization and instruction, they have treated pupils as if they were all alike. The investigations of Thorndike and others have shown that one of the most

¹ William F. Russell, *Economy in Secondary Education*. (Riverside Educational Monographs.) Boston: Houghton Mifflin Co. Pp. 74. \$0.35.

impressive facts about the groups of children in our classrooms is the wide differences in natural interests and abilities which they present. The two topics which have been most widely discussed in our educational journals of late have had their origin in this doctrine of individual differences. The junior high school attempts, among other things, to deal with the problem on the side of organization, supervised study on the side of classroom method.

Among the abundant material on the junior high school may be mentioned an article on its administration by Charles H. Johnston¹ in *Educational Administration and Supervision*, which contains a valuable bibliography of discussions and reports. Another paper by the same author is found in the *Journal of the National Education Association*.² Thomas H. Briggs of Teachers College, New York, has discussed the subject in his chapters on Secondary Education in the annual reports of the Commissioner of Education for the last three years. The forthcoming bulletin on the junior high school which Mr. Briggs is preparing for the General Education Board is awaited with interest. Bulletin No. 1, Vol. XI,³ published by Middlebury College, Vermont, is an outline of a course on the junior high school given in that institution by Mr. Frank E. Howard, containing a discussion of the defects of our present system, the advantages of the junior high school, notes on the course of study, and a selected bibliography. Perhaps the best available statement of the courses offered in the junior high school is that contained in the *Hand Book of the Detroit Junior High Schools*.⁴

One who examines the growing mass of material on this subject can have no doubt of the widespread interest in this new form of organization which is rapidly being adopted in every part of the country; nor can one avoid a feeling of apprehension that the movement in the direction of changes in administrative form will outrun the changes in organization of materials and methods of instruction which are essential to the ultimate success of the junior high school.

The selective function of the high school by which the pupil has been enabled to discover the lines of his greatest interest has been long emphasized in educational discussion. The fallacy has been that a large number of pupils have never entered the high school at all, and that for those who have entered there has been too little time to secure mastery of the subjects which have appealed to their special interests. If the program of studies in the junior high school is made broad enough to perform this selective function two years earlier, it will be possible to arrange sequences in the different subjects long

¹ Charles Hughes Johnston, "Junior High School Administration," *Educational Administration and Supervision*, February, 1916, pp. 71-86.

² Charles Hughes Johnston, "The Junior High School," *Journal of the National Education Association*, I, 145-51.

³ Frank E. Howard, "The Junior High School," *Middlebury College Bulletin*, Vol. XI, No. I. Pp. 43.

⁴ *Hand Book of the Detroit Junior High Schools*, 1916-17.

enough to give the pupils such mastery as will greatly increase their efficiency either in higher institutions of learning or in their life-occupations.

The freedom from the formal requirements of time and textbook which the unit definition has imposed upon the four-year high school will offer wider opportunity for the much needed attention to the study habits of pupils. This movement already well under way in the existing high school, if extended to the seventh and eighth grades, should go a long way in the elimination of the waste which has marked the period of secondary education. Interest in the improvement of the methods of study of high-school pupils has been rapidly increasing and has resulted in many experiments generally spoken of as supervised study. Mr. Hall-Quest has performed a considerable and laborious service in collecting the scattered material in the journals and in securing detailed reports of the practices in many schools about which no published material was available. This material he has published in his book *Supervised Study*,¹ from which the principal and classroom teacher may secure information as to the various methods of organization and classroom procedure employed.

In teaching effective methods of study there is great need of explicit directions which can be given concrete application in school situations. *How to Study Effectively* by Guy M. Whipple² presents such directions in a little book which has been found valuable for the purpose. Another book,³ which was prepared by Mr. Harry D. Kitson for use in classes of college Freshmen, is worthy of mention. Principal Sandwick's book,⁴ published before both of these, is designed to meet the same purpose. Several concise statements of directions for study have been prepared for the use of pupils. Among these are the *Study Helps*⁵ which have been used with good results in the High School of the University of Chicago. These are prepared with gummed backs and are pasted by the pupil inside the cover of each textbook which he uses, where they are easily available for reference whenever occasion demands.

II. BOOK REVIEWS

Applied Latin. By W. H. FREEMAN. Milton, Pa.: Weidenhamer & Co.

In the March issue of the *School Review* there appears a lengthy examination of *Applied Latin* containing hardly a single commendatory reference. It has occurred to us that the reviewer did not keep carefully before his mind that

¹ A. L. Hall-Quest, *Supervised Study*. New York: Macmillan. Pp. 443. \$1.25.

² Guy Montrose Whipple, *How to Study Effectively*. Bloomington, Ind.: Public School Publishing Co. Pp. 44. \$0.50.

³ Harry D. Kitson, *How to Use Your Mind*. New York: J. B. Lippincott & Co. Pp. 215. \$1.00.

⁴ Richard L. Sandwick, *How to Study and What to Study*. Boston: D. C. Heath & Co. Pp. 170. \$0.60.

⁵ *Study Helps*. Prepared by teachers in the University High School. Chicago: The University of Chicago Press. \$1.00 per hundred.

the ethics of reviewing demand that a reviewer should point out, not only the defects, but also the good points of the work. It has appeared to us quite unprofessional, then, that the reviewer should have taken so much space to call attention to some picayune details of mechanical construction, to render certain statements ridiculous by separating them from their context, and to give evidence that he has not made a serious attempt to find out first the aims which prompted the book.

It is true, as the reviewer says—unfortunately too true for the good of the subject of Latin—that there has been almost no change in the methods of Latin instruction for beginners in the last thirty-one years. Practically every author has slavishly followed the outlines of the Collar and Daniell *Beginner's Latin Book*, though in late years there has been a marked attempt to wander away even from some of the chief merits of that work. For instance, its wide vocabulary, which really gave to the student the power to translate Latin works other than the *Commentaries* of Caesar, has been pared down so that little now remains. Consequently today when a Latin teacher is asked what is the purpose, aim, or method of his teaching, he is forced to say that he has none other than getting his students ready to read Caesar, then Cicero, then Virgil, for what—well just to pass the college-entrance examinations. This is an unfortunate situation. Such teaching can only be meager, jejune, and for the majority of students unattractive, even repellent. The continuing of the subject of Latin in the high schools of the country, merely that a very few may measure up to certain fixed requirements, without doubt has been responsible for the great hostility that today attends the subject. If the subject of Latin is to be retained in the curriculum, it must be made to offer to the vast numbers of students who do not intend to go to the higher institutions some actual reason for its existence. It is therefore rather unfair and short-sighted for a reviewer to attack a book because it aims to make Latin a helpful subject to the 95 per cent of pupils who expect to find something of value in everything they study. No book, we take it, should be condemned at this time which aims to prove to our pupils that one subject, at least, has actual and tangible merits. It is unfair also to the great subject of Latin to allow it to be attacked continually on the grounds of lifelessness and uselessness to this generation. Your reviewer should carefully read the introduction to this book again and note that it has been written especially to bring out the value of Latin to those pupils who do not intend to use it as a means for passing into college. Some of its novel features will appear to him in a different light, and he will not belittle the book because it is not a slavish imitation of its predecessors.

In such a work as *Applied Latin*, which aims to awaken the student to the realization that Latin is the best handmaid to the study of English and is indispensable to an easy understanding of much of the terminology of the other subjects of the high-school curriculum, that prime emphasis should not be given, as in other books, to the translation of Latin sentences. Other things must naturally precede this or the book will fail to reach the accomplishment of

its aims. The study of English words, their spelling, their derivation from Latin, English grammar, Latin vocabulary (selected for its importance in furnishing root words in English), Latin forms and rules of syntax, drill exercises, etc., must precede translation from Latin into English or from English into Latin. If the book aims to present the facts of English grammar side by side with those of Latin grammar (a scheme which reduces the English teacher's difficulties in teaching formal English grammar), it is greatly to the credit of *Applied Latin* that the different parts of speech are handled in a consecutive manner rather than in the jumbled fashion of the older-style books. In such a book it is hardly discreditable that the first exercises in the translation of continuous prose should not be on the first pages of the text. Surely every teacher of Latin realizes that one of the main defects of present instruction in Latin is that the student is asked to read sentences selected from the scrupulously exact and usually uninteresting narrative of Caesar before he has learned to read simple sentences, the material of which demands no extended knowledge of the facts of a distant civilization.

The sentences which your reviewer has dubbed a substitute for translation are not and never were intended to be such a substitute. They occur on the very first page of the text and merely embody one method of acquiring new Latin words. No case relations are asked of the pupil because up to this point no reference at all has been made to the fact that Latin words have case relations.

It is difficult for us to understand why so much space is given to criticizing our use of the word "translate." We should be glad to have, and numerous other teachers would welcome, some substitute for the word "translate" which would clearly convey to the mind of the young student the idea involved, even when its use is somewhat extended as your reviewer has pointed out. Some of the words proposed, as "sense" or "interpret," would mean practically nothing to the pupils for whom this book is intended.

The extent to which your reviewer permits himself to go is to be seen in his unwarranted suggestion that the author of *Applied Latin* should have adopted the English pronunciation of Latin. It is absurd for anyone to make such a suggestion at a time when there is hardly anyone who would even think of Latin in terms of English pronunciation. Certainly no teacher of Latin would contemplate such a course for a moment. We take it that such a suggestion is eminently unfair.

It would be a matter of too much space to dwell upon the excerpts from the book that appear in the review. Surely it is unfortunate that the entire content is not added in each case. The impression is altogether antagonistic to the book and seems to indicate that the reviewer went pretty far afield to discover points for criticism. It is true that in the current beginners' books nothing is done in a concrete way to elucidate the difficulties in the rendering of the subjunctive mood. Now that something has been attempted in this line it is rebuked, apparently because it has not been done before.

We should like to call attention to the fact that the book does not present a monotonous typography as stated. The reason for this criticism rests, not on the type, which presents plenty of variety, but on the fact that the book is not stuffed full of pictures and cuts in a desperate attempt to lure on the hesitating pupil. Other means are employed in this work to convince such a pupil that every hour spent with this book will more than repay his effort. The lack of constantly recurring breaks in the text to indicate the divisions of the work has behind it an endeavor to permit the teacher himself to set the extent of his assignments and to prevent pupils from deciding how much they will study, for it is a well-known fact that the student will stop automatically at the break between the lessons if such a break is indicated. We fail to see, too, why the digressions on Roman customs and manners should not meet with the approval of any reviewer. In them is material which the pupil should get in his course, but which the ordinary teacher rarely presents.

W. H. FREEMAN

TRENTON, N.J.

Critical Realism, A Study of the Nature and Conditions of Knowledge.

By ROY WOOD SELLARS, PH.D., Assistant Professor of Philosophy in the University of Michigan. Chicago: Rand McNally & Co., 1916.

Upon thoughtful men philosophy has a claim of a nature which no other discipline possesses. Every normal human being from the savage to the genius has a metaphysical system, incoherent and imperfectly formulated though it may be. He has, for example, certain notions about the external world, the relation between this world and his own conscious life, and much else. He is therefore in an utterly different relation to this subject from what he is to physics or geology. The demand which it makes upon his attention is thus the demand that his thoughts concerning these matters shall be guided by the best thought of the race.

Professor Sellars, in his *Critical Realism*, has proceeded throughout upon the foregoing supposition. He shows first what the fundamental features of popular metaphysics are, and he likewise shows their untenability. It is physics, physiology, and psychology that have supplied the demonstration of this fact by showing that what appears to be an immediate vision of the external world is nothing of the kind; that in reality the external world is known to us only in an indirect way, and that every picture we form of it is modified by purely subjective factors, the traces of past experience. On the ruins of popular metaphysics men of science have essayed to build up systems of their own; those of Descartes and Locke were but the forerunners of many others. In so far as these thinkers assume a world really possessed of the "primary qualities of matter" as physics conceives matter for its own purposes, they can also be shown to be building without foundations. As a result we seem to be left with a universe consisting of finite centers of consciousness, or, as in the

Berkeleyian scheme, of finite minds plus the infinite consciousness of God. That the very nature of knowledge compels us to accept a world which is thus a system of minds and nothing more is vigorously asserted by a large number of contemporary students of metaphysics, though their songs are sung in many keys often far from accordant. The futility of these positions is exhibited by Professor Sellars by means of an analysis of the knowing process, in what is one of the best parts of his book. In particular they are shown to break down when tested by our knowledge of other minds than our own—a subject upon which most contemporary epistemologists are strangely reticent. With these illusory barriers broken down the question whether there is anything in the universe besides centers of consciousness becomes simply a matter of evidence. Professor Sellars holds—correctly, as I believe—that this evidence can be produced.

It runs along a number of convergent lines, but all turns in the last resort upon the recognition that our experience in sense perception is determined by other than mental factors, by factors which are not discoverable in one's own mind or in the mind of others. The conclusion that emerges is the existence of an "external world," but one of which we have no immediate vision, one of whose qualities and relationships we can know only in a very indirect and incomplete manner through the effects it produces in consciousness. The position thus reached is Realism, but not the naïve Realism of popular thought and some contemporary philosophers, but a Realism that has gone through the fires of criticism directed at these naïve conceptions by Berkeley, Hume, and Kant, and their followers.

The ways in which contemporary Idealists try to conceal from their eyes this determination of mental happenings by conditions which cannot be found in finite minds at least, Professor Sellars describes at some length. But he has not done it with sufficient completeness. He has not shown, as he might have shown, that the speech of the Idealist always betrayeth him; that, with all his criticism of, or contempt for, the category of causation as an instrument of metaphysical investigation, he will invariably be found to be accepting beliefs which have no justification whatever except the principle of causation; that the only question with any metaphysician is not whether he will use the principle, but whether he will do so openly and consistently and to the end, or whether he will rather sneak it in when his reader isn't looking and use it only when he finds it convenient. Professor Sellars also fails to deal with sufficient thoroughness with the difficulties which undoubtedly attend the use of the principle—difficulties which, if they do not justify, to a considerable extent explain this playing fast and loose with this fundamental conception. At these points the work might have been stronger. Nevertheless it is an admirable presentation, as a whole, of the data upon which a critical theory of Realism must rest. In particular, it is a welcome addition to the literature of the knowing process. It may thus be commended warmly to those who have passed beyond the stage of naïve Realism and still, whether through the influence of science or otherwise, find themselves compelled to look with suspicion upon the

pretensions of the various forms of Idealism. It may be commended with equal warmth to those who are interested in certain phases of the problem of knowledge which are more or less completely ignored in most treatises on psychology and are dealt with in an unsatisfactory manner in most contemporary works on logic and epistemology.

FRANK CHAPMAN SHARP

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Measurements of Some Achievements in Arithmetic. By CLIFFORD WOODY. New York: Teachers' College, Columbia University, 1916. Pp. 63.

This monograph presents a series of scales which are adapted to the measurement of the fundamental operations in arithmetic. In the derivation of these scales Mr. Woody has in a general way followed the methods which Buckingham and Trabue used respectively with spelling and completion tests. Readers who are familiar with the statistical nomenclature of scale formation will discover much of interest throughout the monograph. Other readers will derive their chief profit from a consideration of Part I, pp. 1-24, in which the author describes the arithmetic scales, gives directions for their uses, and discusses their values and limitations. Part II, pp. 25-63, presents a somewhat detailed account of the derivation of the scale.

The author has arranged two sets of scales: series A to be given when there is an abundance of time for testing, and series B to be used when the time is more limited. Each series consists of a separate scale for addition, subtraction, multiplication, and division. Each scale in series A is comprised of thirty-five or more problems arranged in an order which proceeds from very simple problems to those of successively increasing difficulty. Each pupil solves as many problems as he can in twenty minutes. The author has established comparative values for each problem and has elaborated several tables for use in estimating class averages. He has also presented tentative standards of achievement in each fundamental process for all of the grades from II to VIII.

The Woody scales will undoubtedly prove to be a valuable addition to the rapidly increasing number of instruments which are adapted to the measurement of achievement in school subjects. Just what proportion of total or essential arithmetical ability is measured by the Woody scales remains to be seen. Mr. Woody acknowledges a number of important assumptions which underlie the derivation of the scales, and he has been arbitrary repeatedly (possibly necessarily) in the selection of methods for computing problem values.

It will be interesting to compare the abilities of specific classes which have been tested by the Woody scales with their abilities as determined by the Courtis tests. If each series of tests measures general ability in the fundamental arithmetical processes, the averages maintained by any class, if large

enough, should be approximately proportionate to the respective standards which have been set by Woody and Courtis for the given school grade. If, on the contrary, large classes tend to differ with reference to the respective standards set, it will be evident that one, or possibly each of the Woody and Courtis tests, measures particular rather than general ability in the fundamentals.

FRED C. AYER

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III. PUBLICATIONS RECEIVED

(Detailed discussions of some of the following books will appear later.)

CLOPPER, EDWARD N. *Farmwork and Schools in Kentucky*. Photos by LEWIS W. HINE. Published by National Child Labor Committee, New York City, March, 1917. Pamphlet 274. Paper. Pp. 30.

A study of farmwork in relation to schools and community life. Farmwork interferes with the education of rural children more than any other factor. Compulsory attendance law is ignored with disastrous results to child, school, and community.

Courses of Study in Hygiene and Sanitation. Nebraska Educational Bulletin. Special edition. Vol. II, No. 3, December, 1916. Published quarterly by the State Department of Public Instruction, Lincoln, Neb. Paper. Pp. 44.

Keeping the Children Well. Medical Inspection; School Nurses; the Open-Air School; Open-Air Rooms. Monograph No. 4, Series of 1916-17. Ordered published by the Board of Education, City of Minneapolis, December, 1916. Pp. 41.

MELVILLE, NORBERT J. *Testing Juvenile Mentality by the Binet-Simon Scale with the Original Questions, Pictures, and Drawings. A Uniform Procedure and Analysis*. With an introduction by WILLIAM HEALY. Philadelphia: J. B. Lippincott Co., 1917. Cloth. 12mo, pp. xi+140. \$2.00.

Designed to aid in the training and guidance of school officials and others who, though not specialists, may be called upon to give the first decisions in case of suspected mental deficiency.

STRONG, EDWARD K., JR. *Effects of Hookworm Disease on the Mental and Physical Development of Children*. New York: The Rockefeller Foundation. International Health Commission. Publication No. 3, 1916. Pp. 121.

WILSON, MATTHEW HALE. *An Inductive Study of Standards of Right*. Boston: Richard G. Badger, 1916. Cloth. Pp. 321. \$1.50.

A detailed view of the main activities of society with application of the moral principles which guide to correct conduct. Social, ethical, and vocational guidance.

HIGH-SCHOOL TEXTBOOKS

BURKHARD, OSCAR (Editor). *German Poems for Memorizing, with the Music to Some of the Poems*. New York: Henry Holt & Co., 1907, 1917. Pp. viii+129.

- ESPINOSA, AURELIO M. *Elementary Spanish Reader*. Chicago: Benjamin H. Sanborn & Co., 1916. Cloth. Pp. ix+208. \$0.90.
Simple, idiomatic, practical readings to accompany the introductory lessons in Spanish.
- GRIFFITH, SAMUEL IRA. *Carpentry*. Peoria: The Manual Arts Press, 1916. Illustrated. 12mo, pp. 188. \$1.00.
The essentials of carpentry with a chapter on building estimates. For vocational and trade-school students and journeymen.
- HART and PERRY (Collectors). *Representative Short Stories*. New York: Macmillan, 1917. Pp. xxi+304. \$0.25.
- HESSLER, JOHN C. *The First Year of Science*. Chicago: Benjamin H. Sanborn & Co., 1916. Cloth. Pp. xiii+484. Laboratory Exercises, pp. ix+118. With Manual, pp. 626, \$1.45; without Manual, pp. 498, \$1.25; Manual, pp. 128. \$0.65.
Physics and chemistry with no formulae, symbols, or equations and only a few calculations and those very simple. Other chapters are entitled "Water, Heat, Air, and Light in the House," "The Weather," "Plants," "Animals," "The Human Body and Its Food," "Sanitation," etc.
- HUEBSCH, RUDOLPH W., and SMITH, RAYMOND F. *Progressive Lessons in German*. Revised Part I. Boston: D. C. Heath & Co., 1917. Cloth. 16mo, pp. ix+165.
Embodies some unique features, the outcome of classroom experience. For junior high school.
- LEE, ARTHUR. *Lessons in English*. Based on the texts by Reed and Kellogg. Book II. New York: Charles E. Merrill Co., 1917. Cloth. 12mo, pp. 320.
Part I treats of the sentence and parts of speech. Part II is a detailed discussion of the elements of English composition.
- LUQUIENS, FREDERICK B. *Elementary Spanish-American Reader*. New York: Macmillan, 1917. Cloth. Illustrated. 12mo, pp. xi+224. \$0.90.
Interesting stories and descriptive material in Spanish for students commencing the study of the language. Contains exhaustive notes and complete vocabulary.
- MORRIS, JOHN E. *Europe in the Nineteenth Century (1815-1878)*. Cambridge: University Press, 1916. 12mo, pp. 278. 2s. 6d.
- SCHERER, PETER. *Deutsches Lesebuch mit Sprach- und Sprachübungen*. New York: Henry Holt & Co., 1917. Pp. v+132.
- SHEAFFER, WM. A. *Household Accounting and Economics*. New York: Macmillan, 1917. 12mo, pp. xi+161. \$0.65.
Business methods applied in home management. For girls and women taking household economics courses.
- SPRAGGE, W. HORTON and SLOMAN, ARTHUR. *Latin Prose for Middle Forms*. Cambridge: University Press, 1916. Pp. viii+147+16. 12mo, 3s.
To assist early facility in continuous Latin prose.

STONE, JOHN C. and MILLIS, JAMES F. *Plane and Solid Geometry*. Chicago: Benjamin H. Sanborn & Co., 1916. Cloth. Pp. x+448.

A revision of the text published in 1910 by the same authors preserving the principal features of the older book, but purporting to be more simple, practical, and teachable.

TALBOT, L. RAYMOND. *French Composition*. Chicago: Benjamin H. Sanborn & Co., 1915. Cloth. Pp. x+145.

Exercises in English to be translated into French. English-French vocabulary.

THURSTONE, LOUIS L. *Freehand Lettering*. Chicago: B. D. Berry Co., 1915. Paper. 4mo, 20 plates.

Seventeen plates with instructions for the student.

WHITNEY, MARIAN P. and STROEBE, LILIAN L. *A Brief Course in German*.

New York: Henry Holt & Co. Cloth. Pp. ix+199.

Based on use of the verb and the phrase according to the direct method. Has demonstrated its worth in Vassar and several high schools.

JUNIOR-COLLEGE TEXTBOOKS

NORTHROP, EDWIN F. *Laws of Physical Science*. Philadelphia: J. B. Lippincott Co., 1917. Cloth. 12mo, pp. vii+210. \$2.00.

A reference book of the general propositions and laws of physical science.

ROWE, HENRY K. *Society, Its Origin and Development*. New York: Scribner, 1916. Cloth. Pp. vii+378.

Social science seen in its practical aspects.

VENABLE, FRANCIS P. *A Brief Account of Radio-Activity*. Boston: D. C. Heath & Co., 1917. Cloth. 16mo, pp. vi+54.

WEBSTER and NEILSON (Translators and Editors). *Sir Gawain and the Green Knight, Piers the Ploughman*. Boston: Houghton Mifflin Co. Cloth. Pp. xi+60. \$0.60.

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